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A new threat?

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EDITORS CORNER



Editorial

Brig Gen (ret'd) Ioannis Galatas, MD, MA, MC

Editor-in-Chief C²BRNE Diary



Dear Colleagues,

November was marked by the death of Al-Baghdadi the leader of the Islamic State but although this got global attention, no major changes on terrorism plague are expected. Terrorism is a living hydra; cutting one head means nothing to the beast. Not to remind that a new head errupts after a while. In that respect, the problem lies into the roots and not heads. Killing Osama bin Laden did not eliminate al Qaeda. On the contrary, these organizations reshaped and continue to be both influencial and deadly active. Even to long rival between ISIS and AQ will lead to more sophisticated attacks (CBR included) in an effort to gain face and establish leadership in the terrorist world. December, the last month of the year, is a very special month and alertness should be the highest possible especially in the countries most affected by terrorism like the UK who recently downgraded its threat level – why?

Some interesting news from around the globe to contibute to your knowledge of the subject matter – do not forget that knowledge is power and the best shield against the threat First Responders are facing daily all year round!

- It seems that leftovers of ISIS are regrouping in countries affected together their affiliates worldwide; and so is al Qaeda!
- Singapore's General Hospital is a fine example on CBRN preparedness read how to transform a covered parking space into a functional decontamination facility!
- A very interesting Iranian paper on "new therapeutic approches for sulfur mustard lung injuries from acute to chronic phase" was recently published read it! Iranians have the best experience on these issues due to their chemical war experiences.
- First FDA-approved product (Silverlon) for skin sulfur mustard injuries
- Tokyo permitts policemen and firemen to use auto-injectable CWA antidotes mainly because of the coming 2020 Olympic Games. Well, better late than sorry! But still, not a word on the Internet on hospitals' CBRN preparedness – might be a top secret or a top gap same as in Rio2016. Yes, no CBRN attack during Olympic Games, but what if …?
- Solution Cyberattack on India's largest nuclear power plant. A new reality with unthinkable consequences in successful in the future
- Perhaps a new threat from above is emerging: interference of commercial drones during aerial firefighting process already happened in California; it can happen again anywhere in the world. Togethe with drones/swarms capable to ignite forest wildfires represent a threat that need to be seriously addressed ISIS already threaten to use this modus operandi against US and European forests. Summer 2020 is not that far away and climate chage will facilitate even more the effects of these attacks.
- There are some voices supporting the control of commercial drones. The Editor has a concrete opinion about who should use drones and when. We can live without aerial views of landscapes, concerts, airports, sports events, etc. But what about the next time we will read that a drone was "accidentaly" sucked by an airplane's turbine during the landing process and 300 people were killed in horror?

Be prepared First Responders! Study a lot! Practice a lot! Fill the gaps and transform problems identified into lessons learnt! Do not forget that the few and the brave is the first and the last line of defense of our civilized societies!

The Editor-in-Chief



New gender-neutral guidelines will allow male Navy personnel to wear makeup, false eyelashes

Source: https://www.newshub.co.nz/home/new-zealand/2019/10/new-gender-neutral-guidelines-will-allow-male-navy-personnel-to-wear-make-up-false-eyelashes.html

Oct 20 – The New Zealand Defence Force will be updating its grooming and appearance guidelines to reflect a more gender-neutral attitude for the Royal New Zealand Navy (RNZN), meaning male personnel can wear makeup and nail polish if they wish to do so.

Newshub received information from a Navy insider last week that the RNZN will implement a more inclusive set of appearance and grooming regulations.

Chief of Navy Rear Admiral David Proctor confirmed the changes in a statement to Newshub on Friday.

"The NZDF can confirm that as of November 1, 2019, guidelines around grooming and appearance for Royal New Zealand Navy personnel will be updated," said Proctor.

"These updates are to reflect that the RNZN make no distinction between male and female members in terms of their personal grooming and appearance.

"These changes reflect that diversity and characteristics of the RNZN."

inclusion are critical to our success as an organisation, as are the unique traditions and characteristics of the RNZN." Proctor said the RNZN's grooming standards are based on neatness, cleanliness, safety and military image.

The updated regulations mean as of November 1, all Navy personnel are permitted to wear discreet makeup, clear or pale nail varnish when in uniform, "trimmed, neat and natural" false eyelashes, one pair of "natural coloured" stud or sleeper earrings and perfume or cologne in moderation. Rings may be worn on a maximum of two fingers.

Navy personnel are also allowed to use natural-coloured hair dye or have their hair "lightly tipped", as long as it's clean and neatly groomed. Long hair is also permitted in a bun or single plait to ensure safety and tidiness.

The appearance guidelines still prohibit body piercings, "exaggerated hairstyles" (partially shaved heads, mohawks, undercuts and "zigzagging of hair" included) and hair accessories.

"These standards are designed to present an inclusive, professional military image," said Proctor.

"The RNZN is a modern and professional organisation that embraces individuality and personality.

"However, we are a military organisation and with that comes certain expectations on our personnel in terms of dress and appearance."

EDITOR'S COMMENT:

The box was intentionally left blanc

Concerns Persist about Fate of Captured Islamic State Terrorists

Source: http://www.homelandsecuritynewswire.com/dr20191023-concerns-persist-about-fate-of-captured-islamic-state-terrorists

Oct 23 – Fears that Turkey's offensive in northeastern Syria allowed untold numbers of captured Islamic State terror group fighters to escape may be overblown, according to U.S. officials.

Since Turkish-backed forces crossed the border and began clashing with Kurdish fighters aligned with the U.S.-backed Syrian Democratic Forces (SDF), there have been reports of SDF-run prisons coming under attack and of IS fighters running free.







But Wednesday, the U.S. insisted almost all of the estimated 12,000 captured IS fighters, including about 2,000 fighters from outside Syria and Iraq, were still behind bars.

"The SDF continues to hold the vast majority of the ISIS fighters who were being detained," a senior administration official said.

"We have assets in the region and good relations with the parties on the ground and so we're keeping a very close eye on the situation," the official added, saying that both the SDF and Turkey had given "very strong commitments" that any escaped IS prisoners "will be hunted down and recaptured."

Estimates for how many IS fighters are on the run have varied greatly in recent weeks, prompted in part by threats from SDF leaders that they might have no choice but to pull prison guards in order to turn back the Turkish offensive.

SDF officials told VOA they never made good on their threats, and earlier this week insisted they even took steps to ensure captured IS fighters would not be able to escape.

"There aren't any prisons in areas that Turkish forces recently have occupied," SDF Commander, General Mazloum Abdi said Monday. "We have evacuated all prisoners in those areas and moved them to prisons under our control."

Still, Turkey claimed last week that about 750 fighters had escaped, most of them freed by the SDF, saying about 200 had been recaptured. On Tuesday, Russia's defense minister alleged that up to 500 IS prisoners had broken out.

"We'd say that the number is now over 100," the U.S. Special Representative for Syria, Ambassador James Jeffrey, told U.S. lawmakers Wednesday, just one day after testifying at a separate hearing that the number was likely in the dozens.

The whereabouts of those escaped IS fighters remains unknown, Jeffrey added, though he was contradicted less than an hour later by U.S. President Donald Trump.

"There were a few that got out," Trump said during a speech at the White House touting the success of a U.S.-brokered ceasefire between Turkey and the SDF.

"They've been largely recaptured," Trump said. "We also expect Turkey to abide by its commitment regarding ISIS, as a backup to the Kurds watching over them. Should something happen, Turkey is there to grab them."

A Syrian Kurdish official told lawmakers that including family members, such as wives and children who were being kept separately at displaced persons camps, about 600 IS loyalists were on the loose.

President of the Executive Committee of the Syrian Democratic Council Ilham Ahmed said that figure included two fighters from Belgium, six fighters from France and 10 IS fighters whose nationalities have not been determined.

BUSINESS CONTINUITY ISSUES

Latest Strategic guidance on Building decontamination for CBRN

Source 1: http://www.continuityforum.org/content/page/latest-strategic-guidance-building-decontamination-cbrn Source 2 (guide): http://www.continuityforum.org/sites/default/files/images/403486_HMGov_StrategicNationalGuidance_acc.pdf

The guidance is part of sensible contingency and business continuity planning and does not mean that there is an increased risk of terrorist attack using CBRN materials. It gives basic information on the decontamination and remediation that may be required following a deliberate or accidental release in the UK as outlined below.

This document replaces guidance published in 2004 by the Department for Environment, Food and Rural Affairs, and the Office of the Deputy Prime Minister (now the Department for Communities and Local Government).

An incident, whether deliberate or accidental (HazMat), involving chemical, biological, radiological or nuclear materials can potentially lead to the loss of life, contamination of the built and open environment, disruption of society and consequential damage to the UK economy. It is therefore important that plans are in place to minimise the effects of such an event, and to plan for recovery following this type of incident.

This guidance builds on the 2004 documents, and offers improved signposting and updated information in a shorter and more accessible format. It also covers key elements in the decontamination process following an incident – from developing the initial recovery strategy through to managing waste and returning things to normal.

The principal roles and responsibilities of key organisations have been identified and listed, and planning and precautionary measures have been highlighted to promote better preparedness.

In view of the different types of potential incidents, and the variety of buildings, environments and infrastructure that could be affected, the guidance in this document is necessarily generic. It provides a starting point for the development of more detailed contingency plans



to deal with specific incidents. This document also describes the current legal powers available to local authorities in the event of such an incident.

Evacuate or Shelter in place?

Source: http://www.continuityforum.org/content/news/2009/11/evacuate-or-shelter-place

From a Business Continuity or Emergency Planning perspective is it better to evacuate people in the vicinity of a serious chemical fire or should they remain where they are?

A study¹ comparing the health outcomes in sheltered and evacuated populations after a chemical fire suggests that there are health advantages in people sheltering rather than evacuating. The study is published in the BMJ and was based on a real incident in 1999.

It involved collaboration between public health staff at a local health authority and national health experts (now at Bristol University and the Health Protection Agency). In the event of a serious chemical incident where the public may be exposed to smoke from a fire, two main options of protective action exist - sheltering or evacuation. The prevailing expert view is to shelter, based largely on experimental and modelling studies.

This new study published in the British Medical Journal looks at a typical business continuity challenge, a fire started in a factory manufacturing plastic goods in southwest England. The factory was situated on an industrial estate adjoining a large residential area.

The initial response of the emergency services was to begin evacuating residents from their homes to a nearby leisure centre. This decision was subsequently reviewed and residents were advised to stay inside their homes and shelter. The resultant partial evacuation offered a rare opportunity to compare the relative health protection offered by these two modes of intervention.

A postal questionnaire survey was carried out on residents in the affected area and compared the health outcomes among the people evacuated (one third) and sheltered (two thirds).

In the two groups of residents similarly exposed to smoke plume from the chemical incident, the survey showed that evacuation did not confer any additional health benefit over sheltering. If anything, evacuated residents seemed to have more ill health effects soon after the incident than sheltered residents, although the difference did not seem to persist beyond two weeks.

Although the study has its limitations, it is a comparative study based on a real incident. The results reinforce the prevailing expert view that favours sheltering over evacuation as a response to protect populations exposed to chemical air pollution incidents. It is consistent with UK policy and practice in dealing with emergencies.

FORUM COMMENT

For some time, the evidence has been mounting for the benefits of 'Shelter in Place' (SiP) as opposed to evacuation for incidents of this type.

The latest Expert advice from Government currently recommends the value of SiP as a viable and effective alternative to evacuation for the management of local incidents based on, real life experience gained under a variety of circumstances. Currently, there is a

¹ Kinra S, Lewendon G, Nelder R, Herriott N, Mohan R, Hort M, Harrison S and Murray V, (2005). Evacuation decisions in a chemical air pollution incident: cross-sectional survey. BMJ, 330, 1471-1474.





belief that, on balance, for many types of incidents the difficulties of a even a minor evacuation expose those in the affected area to greater health risks than SiP.

The issue that this raises for those working in the BC arena is twofold, firstly, understanding your local risks, and secondly, ensuring that your planning is connected with that of the Local Authority and Emergency Services and that the decision to Shelter in Place can be effectively communicated to those on-site, particularly as employees and visitors may be anxious, or even panic when faced with the reality of an incident.

Potential Third-Party risks, such as a Plastics or Chemical Factory in the general vicinity of your site/s should feature in the risk assessment/BIA of the BCP highlighting the location and type of facility, along with any other details that may be needed quickly in the wake of an incident. Local liaison is vital too, discuss the local plan for the management of any incident and ensure that there is a clear connection between YOUR response and that of the Emergency Services. Local Authorities should be able to provide detailed advice, and facilitate discussions with other services such as the Local Fire Service and Police should additional detail or measures be needed as there may be specific measures that need to be introduced such as turning off Air Conditioning Systems, which could compromise the benefits of SiP.

Remember though that plans can change and it is important to check back regularly to ensure your planning is still in tune with your local partners. It also pays to check quickly exactly what you are dealing with especially in built up areas and City Centres where the source may not be immediately clear.

Decontamination following a CBR Event

Source: http://www.continuityforum.org/content/news/2009/10/decontamination-following-cbr-event

The planning for business continuity and disaster recovery post CBR chemical biological radiological is often ignored or even potentially worse, incorrectly assessed. This assessment can be assimilated as that of a hazard assessment when the risk manager doesn't know of combined or symbiotic effects. Post CBR planning may be difficult to assess due to limited knowledge, experience or facts but various information is available on which to assert assumptions.

This article attempts to alert the planner to some elements that should be considered.

Insurance.

The backbone of all historic plans, where risk appetite is assessed and shortfalls in acceptance are covered by insurers. Insurers with a wealth of experience simply balance profit by subtracting possible cost against premium. The terrorist cover available to cover IRA type bombings saw premium rates hiked by several percent to accommodate or spread all risks and profits amongst all business policies.

The IRA type terrorists provided known risks and known or estimated costs to restore affected buildings with ample contractors but what of CBR contamination.

TRIA the UK equivalent of Pool Re (Terrorist Risk Insurance Act 2002) signed by President Bush was intended to provide a temporary insurance cover for America until such time as US insurers assessed premiums, but American insurers refused to offer insurance as they probably estimated premiums could not possibly cover estimated claim costs.

The American insurance industry has some first hand experience of CBR and decontamination costs. The Hart

building and Brentwood mail handling facility saw decontamination take two years and cost over \$130 million. That was from just two letters containing anthrax, and the Brentwood facility, which absorbed most of the cost, only had the letters pass through unopened.

Pool Re in the UK backed by the government has said they will insure against terror event. The term terrorist event may be extremely loose and cover may not be as global as advertised.

Take for example a dirty bomb release. The RDD radiological dispersion device is detonated and wind shift carries contamination through 360 degrees. You notice the expected contamination plume so often described as the "Hot Zone has been replaced by non directional spread, a symptom or the urban environment.

Your building wasn't obviously affected by blast but it may suffer secondary contamination. Apart from the initial reaction not discussed in this paper you have left the building and now require employees to return to work the following day, week, month even year. You may wish to get a clearance certificate to satisfy H&S, insurance or simple employee or Union concerns. Who will undertake this, who will provide a guarantee of safety, who would have suitable insurance to provide a safety certificate? What of secondary aerosols which is where contamination (dust) is moved by air movement and this may contain radiation and enter your building days or weeks after the

event or indeed the clearance inspection?



A huge potential liability for clearance certification and employers. Would Pool Re pay for this inspection, investigation? The answer is nobody knows, at some point they must say you were outside the probable contamination "Hot Zone" but where is that and who assessed it?

Contamination events are known and expected to travel and affect people miles from the detonation or release area. Chernobyl for example spread across all of Europe,

The building survey alone could take weeks, how would you pay employees, manage your business, fund secondary locations. How many seats and weeks/months have you purchased from your Hot Site provider? Many questions exist regarding Pool Re and other insurance policies; many will not be answered until case law is established possibly years after the terrorist event. Could you survive long exclusion from your property? Could you afford to pay for decontamination if your policy excludes it?

You should be aware that many policies already exclude contamination; even mould is excluded from many water damages claims. The cost of decontamination as we have already seen in the US is likely to be uneconomical in most buildings and therefore the leasehold and freehold liabilities or values must be re-assessed. How many companies faced with compound uninsured losses in excess of tens of millions could survive?

Government Assistance

The government have recognised the potential problems regarding decontamination and launched the GDS Government Decontamination Service. Fully operational on the 16th October 2005 their mission is to provide a directory of suitable contractors and consultants to oversee the decontamination of public or government buildings.

The GDS require the appointed private sector companies to fully equip and become available for a possible event or training on a annual or perhaps three yearly contract but without retainer. This wish list may require substantial investment from competing companies with no guarantee of return and it's success is likely to be limited unless changes in the procurement process are made. The carrot is the belief that contractors can charge what they want as long as it is reasonable. These words still echo from the foot and mouth epidemic where contractors provided cleaning and sanitation works at exorbitant costs only to find no payment forthcoming as contracts were disputed after the event.

The experience following the outbreak of Foot and Mouth should also be learnt from. The Foot and Mouth outbreak followed almost exactly the parameters of the 1967 outbreak, but of the lessons of that outbreak were acted on and the infection spread across the whole of the UK and resulted in a bill which cost the UK Billions! Contamination may not just affect people and buildings. CBR contamination may spread as witnessed with Chernobyl and affect livestock and crops too.

Following the various CBR incidents there (Brentwood Hart buildings) the American Government found many expected decontamination procedures were not effective. Many hightech solutions ranging from Chlorine Dioxide to Thermal fogging were utilised to varying effects but generally hard work and simple cleaning coupled to audit procedures provided the best results.

The GDS is promoting decontamination procedures that must be seen as doubtful even before use. The British recommendations include the sand blasting of buildings, unfortunately for neighbours their building is likely to be cross contaminated and even worse blasting is likely to push contamination into the building envelope. Sand blasting unless at very high pressure is extremely slow and cost factors may be challenged when the time line to completion is assessed.

Spraying bleach is another recommended procedure that is unlikely to have any affect other than create toxic clouds and pollution run off. These and other decontamination procedures can be seen and should be considered in the <u>DEFRA Strategic National Guidance</u> published in March 2004.

When you assess the likely response from the GDS you might be concerned that they will accept no liability whatsoever for the actions or failures of the contractors they propose, (not recommend). This places the liability directly onto the shoulders of the hiring local authority. They must therefore be capable of assessing the competence and costs of the proposed contractors. Without training or guidance, these employers (local authorities) under the H&S at Work 1974 regulation 3 may be seen as liable for their actions too and the CEO may even face personal prosecution.

Decontamination of each building is likely to take months and therefore huge strains on the local economy and business district should be considered.

There may be a shortage of available contractors and the new CCA civil contingencies act has removed the likelihood of commercial availability. The CCA has specifically stated that any commercially available resources can be commandeered for use by government authorities. While this could be seen as beneficial to the country, it will prevent commercial organisations setting up contracts for possible contamination events as they would most likely have equipment & employees confiscated, with no recourse or indeed right to appeal.

Contamination

spread Contamination will continue to spread,



known as secondary aerosolisation days and weeks after the initial release depending on the agent released. Although plumes are constantly discussed regarding safe direction upwind etc, the reality is that in the urban environment wind speeds vary so much and building shapes, height and other factors result in swirls and constant directional changes, as wind simply bounces off other buildings. These swirls constantly change the direction in which contamination will travel and unless wind speeds reach 25 Km plus the contamination should be expected to have little or no direction. This means that almost any building could be affected and contaminated, requiring clearance today or tomorrow unless controls are installed.

Security | Protecting Places of Worship

Source 1: http://www.continuityforum.org/content/page/security-protecting-places-worship Source 2 (guide): <u>http://www.continuityforum.org/content/page/security-protecting-places-worship</u>

This guide is intended to give protective security advice to those who are responsible for security in places of worship. It is aimed at those places where there may be a risk of a terrorist attack either because of the nature of the place of worship or the number of people who congregate in it.

The guide seeks to reduce the risk of a terrorist attack and limit the damage an attack might cause. It highlights the vital part you can play in the UK counter terrorism strategy.

It is accepted that the concept of absolute security is almost impossible to achieve in combating the threat of terrorism, but it is



Counter Terrorism Protective Security Advice for Places of Worship



possible, through the use of this guidance, to reduce the risk to as low as reasonably practicable.

Terrorist attacks in the UK are a real and serious danger.

The terrorist incidents in Manchester, London and other cities indicate that terrorists continue to target crowded places; as they are usually locations with limited protective security measures and therefore afford the potential for mass fatalities and casualties.

Furthermore, these incidents identify that terrorists are prepared to use vehicles as a method of delivery and will attack a variety of sites.

It is possible that your place of worship could be the target of a terrorist incident. This might include having to deal with a bomb threat or with suspect items left in or around the area.

It is recognised that there is a need to make places of worship as accessible as possible and to ensure there is a welcoming atmosphere within. This guide is not intended to create a 'fortress mentality'. There is however a balance to be achieved where those responsible for security are informed that there are robust protective security measures available to mitigate against the threat of terrorism, e.g. protection from flying glass and vehicle access controls into crowded areas, goods and service yards.

Terrorism can come in many forms, not just a physical attack on life and limb. It can include interference with vital information or communication systems, causing disruption and economic damage. Some attacks are easier to carry out if the terrorist is assisted by an 'insider' or by someone with specialist knowledge or access. Terrorism also includes threats or hoaxes designed to frighten and intimidate.

It is essential that all the work you undertake on protective security is (as appropriate) and your neighbours, if your place of worship is to be

undertaken in partnership with the police, other authorities (as appropriate) and your neighbours, if your place of worship is to be secure.

It is worth remembering that measures you may consider for countering terrorism will also work against other threats, such as theft burglary and arson (which remain the greatest threats to places of worship). Any extra measures that are considered should integrate wherever possible with existing security.



Security and the Health Sector

Source 1: http://www.continuityforum.org/content/page/security-and-health-sector Source 2: http://www.continuityforum.org/sites/default/files/images/CT%20Advice%20Health%20Sector%20LOW%20RES.pdf

This guidance has been developed to assist the health sector in addressing a range of security issues relating to possibility of a terrorist attack to a crowded place within their site. The advice provided in this booklet is built on knowledge, learning and best

practice developed between the National Counter Terrorism Security Office, health sector security professionals including the NHS Counter Fraud and Security Management Service (NHS England), and representatives from the devolved health care administrations across the UK.

Our aim is to make the Health Sector a safe and secure place to work and visit, thus enabling the experts at these sites to provide the highest possible standard of clinical care to for all patients. However, there is a threat of terrorist attacks in the UK, which may affect Health Care sites directly or indirectly. These may not be just a physical attack but interference with vital information, communication systems or personnel issues, which could cause serious disruption, economic impact or damage to reputation.

As part of their security regime, all health care sites should conduct regular reviews of their facilities to ensure proportionate security measures are in place. Each review should consider any new threats and developments to the health sites and the surrounding area.

Any security measure to prevent a terrorist attack will also feed into general crime prevention measures and business continuity which will ensure that health care sites can cope with an incident while also continuing with their core activities. Having a robust security culture and being better prepared will reassure patients, staff and visitors and the wider community that your health care sites are taking such issues seriously.

Security personnel working in the health sector should bring this guidance to the

attention of all relevant colleagues, these are likely to include Estates, Facilities, Health and Safety, and Human Resource Managers. Although each health care site will have its own particular requirements, the guidance provides clear generic advice addressing the key security issues in relation to the current terrorist threat includes a number of useful Good Practice checklists.



Counter Terrorism Protective Security Advice for Major Events

Security and Continuity for Maior Events

Source 1: http://www.continuityforum.org/content/page/security-and-continuity-major-events Source 2 (guide): http://www.continuityforum.org/sites/default/files/images/Major%20Events.pdf

This guide is intended to give protective security and Business Continuity advice to those who are responsible for organising major events and event security, irrespective of size and capacity and is not specific to any particular type of event.

This advice is aimed at those events where there may be a risk of a terrorist attack either because of the nature of the event or the number or nature of the people who host or attend it. It highlights the vital part you can play in the UK counter terrorism strategy.

Terrorism also includes threats or hoaxes designed to frighten and intimidate. These have been targeted at various events in the UK in the past.

It is possible that your event could be the target of a terrorist incident. This might include having to deal with a bomb threat or with suspect items left in or around the event area.

Of course, there is a need to make organised events as accessible as possible and to ensure there is a welcoming atmosphere within event arenas. This guide is accordingly not intended to create a 'fortress



Counter Terrorism Protective

Security Advice

for Health

NaCTSO

mentality'. There is however a balance to be achieved. By following the advice contained in the download you will be building your business continuity capabilities as well as improving your security.

Those responsible for security are informed that there are robust protective security measures available to mitigate against the threat of terrorism, e.g. protection from flying glass and vehicle access controls into crowded areas, goods and service yards and underground car parks.

At some organised events there will be an expectation from the general public that security measures will be in place. Equally, an organised event may take place at a location or in premises where access control and elevated security are an unexpected and unusual (and initially unwelcome) feature. This does not negate your responsibility to ensure appropriate security measures are in place.

Security and Continuity advice for Aviation including Flying Clubs and owners

Source 1: http://www.continuityforum.org/content/page/security-and-continuity-advice-aviation-including-flying-clubs-and-owners Source 2 (guide): http://www.continuityforum.org/sites/default/files/images/General%20Aviation%20LOW%20RES.pdf

The 'General Aviation' sector is extremely diverse. It involves aircraft such as balloons and airships, gliders, micro-lights, helicopters, light aircraft and business jets. Their activities cover anything from agricultural use, aerial surveys, delivery of goods, corporate flights and leisure. The aerodromes that support these activities vary from individual landing strips or helipads to regional airports.



Counter Terrorism Protective Security Advice for General Aviation



This guide is intended to give protective business continuity and security advice to those who work within the General Aviation sector to reduce the opportunity of a terrorist attack occurring, or limit the damage such an event might cause. It also contains crime prevention material and guidance on business continuity. This advice is not mandatory but may assist those engaged within the sector to enhance security to an appropriate level at their site.

If you employ staff at your site, you need to be aware of your statutory obligations under Health & Safety and Human Rights legislation. This advice may assist you in meeting appropriate standards. In the event of an incident, your written risk assessments and plans may come under scrutiny. You have a 'duty of care' to ensure the reasonable safety of everyone who works at or visits your aviation site and the buildings and training facilities therein. Having a Business Continuity Plan also protects your business from other events that could cost your business or much more.

To this end, in order to make the guide as appropriate as possible to your needs, it has been divided into two main parts with checklist appendices at the back.

Part A – The guidance contained within this section is for all engaged within General Aviation. From single operators to the owners of larger aerodromes, there is protective security advice that is applicable to all sites.

Part B – The second part of the guide is intended for operators or owners of aerodromes or small airports that are not governed by the National Aviation Security Programme. It gives security advice for these larger sites, where any number of aviation activities take place on a regular basis and additionally,

provides guidance on continuity issues.

Aviation is one of the most important and rapidly expanding industries within the United Kingdom. It is an essential element of the transport sector and as such forms part of the Critical National Infrastructure providing substantial financial input to the Gross Domestic Product.

It also offers terrorists and organised criminals a range of high-profile targets or a possible method of attack delivery. A successful terrorist incident on any section of the industry will have devastating consequences in terms of casualties and a loss of confidence by the travelling public.

The threat from terrorism has become extremely unpredictable in terms of target and methodology. We have witnessed attacks designed to cause maximum casualties and where possible, also undermine the global economy. To that end, those involved within the industry must be more prepared than ever before.





What a shame for a great nation! China, stop car crash tests NOW! 一个伟大的国家真可惜!中国,现在停止撞车测试!



Overnight Attack that Killed Al-Baghdadi Raises Many Questions

By Seth Frantzman

Source: https://www.meforum.org/59692/attack-that-killed-baghdadi-raises-questions

Oct 27 – A nighttime raid. Helicopters. Special forces. A high-value terrorist target. Concerns about identifying him. All this would have been on the list of challenges facing the Bin Laden raid planners in 2011. On Sunday morning, it was another group of Americans hunting ISIS leader Abu Bakr Al-Baghdadi, which had to go through the same complex set of obstacles to kill the bearded extremist



hiding out in Idlib province near the Turkish border. The raid began just after midnight when locals in towns near Barisha, just a few kilometers from the Turkish border, reported hearing helicopters. Drones were already in the air from just before midnight. *Newsweek* says that US President Donald Trump had approved the strike nearly a week ago. Members of the 1st Special Forces Operational Detachment-Delta – the Delta Force – were brought in to take down the target. Observers at night are not that great at determining how many helicopters are landing next to them, but locals said that they heard as many as six "chasing" a convoy of vehicles. Two of the choppers landed.

A confrontation took place. There were exchanges of gun fire. An explosion was seen. This might have gone

on for around an hour. There were air strikes by several missiles. Later, drones circled overhead. Or maybe what happened was that helicopters were heard over Turkey crossing into Syria. Someone fired at the helicopters. Locals didn't know if it was a Turkish raid or the US-led anti-ISIS coalition. Two helicopters landed out of the 12 that some said were involved. Or maybe it was eight helicopters, others said. Planes carried out air strikes.

For several hours, activity continued. Gunfire and then just the sound of drones buzzing around. Trump tweeted at 3:23 a.m. that "something very big just happened." By morning, people had made videos of the area showing some churned-up earth from an air strike. Others found evidence of a house or



"compound" that might have been the target. It wasn't that nice a villa, certainly worse than Bin Laden's.

By seven in the morning, Syrians had passed details to Iranian officials. Iraqis were informed by 7:30 a.m. According to reports passed to *Newsweek* and others, Baghdadi was not the only target of the raid; he was with two wives. Baghdadi detonated a "suicide vest" or belt; they all died. According to James LaPorta at *Newsweek*, the US only informed Turkey after the raid had started.

Why was Baghdadi in Syria, and in Idlib of all places? In September, he released a new tape, and in April he appeared on video for the first time in years. Baghdadi rose to fame in 2014, proclaiming himself "caliph" of ISIS in Mosul and leading his group to commit genocide and mass rape of minorities. But after that, he was elusive. When ISIS was mostly defeated this March, there were rumors that he was dead or injured. Then he popped up on the videos. But where was he? Supposedly he had been hiding out in desert areas of Iraq or Syria, where some 14,000 ISIS members are suspected to be. He is from Iraq so he knows how to hide out.

If he went to Idlib, why did he go? Was it a Bin Laden-type of thing, the way the Al-Qaeda leader went to Pakistan to relax after 9/11? ISIS received many recruits via Turkey and also one had more of a presence in Idlib. There are a plethora of other extremist groups in Idlib,





particularly Hayat Tahrir al-Sham, which was once Al-Qaeda in Syria. Was that why he went – because these groups would act as a buffer around him? Or was he recently moved there, for various reasons, as some ISIS members migrated to Idlib after defeat in the Euphrates Valley?

And what was this "convoy" that was targeted by the helicopters? What has happened to Baghdadi's body or what's left of it? What did Turkey know?

With so many questions about the raid, this could be Trump's Bin Laden moment. But it could also lead to questions about America's withdrawal from Syria and its erratic policies over the last few weeks.

Seth Frantzman, a Middle East Forum writing fellow, is the author of <u>After ISIS: America, Iran and the Struggle for</u> <u>the Middle East</u> (2019), op-ed editor of The Jerusalem Post, and founder of the Middle East Center for Reporting & Analysis.



A former top US counterterrorism official explains what Baghdadi's death means for ISIS

Michael Leiter, who led the National Counterterrorism Center during the Osama bin Laden raid, offers his thoughts on the Baghdadi operation. By Alex Ward

Source: https://www.vox.com/2019/10/27/20934608/isis-baghdadi-trump-leiter-interview

Oct 27 – <u>Abu Bakr al-Baghdadi</u>, the world's most notorious terrorist, died during a raid by US military forces, President Donald Trump said in a Sunday morning press conference. The former ISIS leader's death put an end to a years-long hunt and gives Trump another major victory in his fight against ISIS.



But Trump went further than just announcing the raid's success. He answered questions after his dramatic remarks, divulging an astonishing amount about US intelligence and American military operations that could benefit American adversaries in the future. He displayed a deep misunderstanding of how ISIS works.

He also denigrated the ISIS leader, saying Baghdadi was "whimpering and crying and screaming all the way" to a dead-end tunnel.

While Trump may view those comments as a smart way to delegitimize Baghdadi, many experts say that wasn't the president's finest moment. After Trump gave his remarks, I spoke with Michael Leiter, who directed the US National Counterterrorism Center from 2007 to 2011 — including during the Seal Team Six raid of Osama bin Laden's compound. Leiter and I discussed the potential impacts of the Baghdadi's death, how the raid was carried out, and what the US can expect going forward. While he says it's a good thing the terrorist leader is gone, Leiter also says Trump shouldn't have given away so much information during a televised event.

"Talking about how many aircraft, where the aircraft are flying in, how they're breaching a building, other technology they can bring to bear, knowledge about the tunnels and the mapping of those tunnels, these are operational details which are only about preening," he told me.

WIA "*Conan*" (Belgian Malinois)

Our interview, edited for length and clarity, is below.

Alex Ward

It's unabashedly a good thing that the US military killed Baghdadi, right? *Michael Leiter*

Absolutely a good thing.

Alex Ward

What effect does killing the leader of a terrorist group like ISIS tend to have? *Michael Leiter*

The more centralized an organization is, the more important it is to decapitate the leadership.

There was definitely a time when killing Baghdadi could've stopped ISIS's rise. It's still important to kill him, because he was an inspirational leader within Syria and beyond. But I do think that the organization has moved well past Baghdadi in the same way that al-Qaeda moved past Osama bin Laden, to some extent.

At this point — seven-plus years after the rise of ISIS — his death is far from a fatal strike against the organization. Alex Ward

So to be clear, ISIS and its thousands of fighters will continue to pose a threat even with Baghdadi gone? *Michael Leiter*

Right, the threat is not gone at all.

Alex Ward

Instead of announcing the operation's success and walking away, Trump answered a ton of questions about the raid. Was it troubling to you to see Trump divulge a lot of information like that?

Michael Leiter

Well, first Trump exaggerated Baghdadi's importance. Second, he repeatedly used language which frankly feeds into the ISIS and the al-Qaeda narrative about the US being at war with Muslims in nations throughout the world, as well as solely caring about our own pecuniary, economic interests like oil. Third, he made it seem like the US will discard its alliances at the drop of a hat. That is a very troubling message to the allies and partners we need need to fight with us, like the Syrian Kurds.

There was also a clear lack of historical appreciation for how these organizations rise, take hold, and are potentially defeated. To the president it all became about finding and killing this one individual. That's important, but it's

not how these terrorist groups are ultimately ousted.

Alex Ward

Trump saying that Baghdadi was "whimpering and crying and screaming all the way" into the tunnel was striking. What were your views on that language?





We have declassified a picture of the wonderful dog (name not declassified) that did such a GREAT JOB in capturing and killing the Leader of ISIS, Abu Bakr al-Baghdadi!



♡ 398 хіλ. 10:02 µ.µ. - 28 Окт 2019



Michael Leiter

Highlighting and repeating that language is not especially dignified for the United States. We should always take a higher moral ground, and talking about an individual's death is not particularly productive.

What the president should've spent more time on was highlighting ISIS's atrocities, like the killing of the Jordanian pilot. That's appropriate: It shows that ISIS wasn't at war with the West, it was at war with all peoples who are civilized, including Muslims who don't adhere to their extremely strict view of Sunni Islam.

Ultimately, I think it reflects more on the president and how he's willing to communicate. I don't think any of that is productive in terms of diminishing ISIS's message or keeping our allies aligned with our goal of undermining ISIS's narrative. *Alex Ward*

Is there any chance ISIS followers will hear Trump's telling of the raid and sour on Baghdadi?

Michael Leiter

I think it will inspire anger — if that language did not, other language will. The idea that Donald Trump's presentation will somehow undermine ISIS's appeal to its adherents is nothing short of laughable.

Alex Ward

Trump also made the case that Baghdadi was equivalent or even bigger than bin Laden in his press conference remarks. Is he right? *Michael Leiter*

This is Trump talking about terrorism from his uniquely Trumpian perspective. Osama bin Laden was the principal leader for radical Sunni Islamic terrorism. He brought that movement together; he built an organization that had more a destructive force on the United States and Muslims throughout the world than any terrorist leader in history.

Baghdadi is an offshoot of that, and the most significant terrorist leader today. But any claim that Baghdadi was more important than bin Laden reflects a complete misunderstanding of the terror threat we've been combating for more than 20 years. *Alex Ward*

Trump gave a lot of information on the raid during his press conference. That was highly unusual, right?

Michael Leiter

I am rather confident that the president was more forthcoming than many in his administration would've liked. We had similar problems after the bin Laden raid and that caused significant angst in the intelligence and operations community because more was disclosed than the operators would've liked.

We should disclose things that are important for people to understand why we were impressive in

our approach, but that does not include divulging operational details that might make something like this harder to do next time. *Alex Ward*

Wait: Trump giving away some of the information he did might make future operations like this harder? *Michael Leiter*

Talking about how many aircraft, where the aircraft are flying in, how they're breaching a building, other technology they can bring to bear, knowledge about the tunnels and the mapping of those tunnels, these are operational details which are only about preening. They do not provide valuable insight into the US decision-making and potentially do provide potentially insight to our adversaries in the future.

This is little more than presidential preening.

Alex Ward

Was Trump wrong to divulge so much information?

Michael Leiter

I think the president disclosed more than what was necessary, and it could provide an advantage to our adversary. I'm willing to say that.

Alex Ward

Did any of what you heard sound similar to the bin Laden raid, since you were a top counterterrorism official when it happened?



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Michael Leiter

There were some differences, but this is the modus operandi that the intelligence community and special forces have slowly honed since the invasions of Iraq and Afghanistan. Unfortunately, we've had 20 years to perfect those operations.

Technology has developed to make some of this easier for us, but it's also made it easier for some of our adversaries. But overall, it's quite similar to what we did in the bin Laden raid: the same sort of meticulous intelligence work that slowly narrows the courses of actions, and ultimately provides the information for our forces to stealthily go in and pursue their target effectively.

Alex Ward

With Baghdadi gone, what happens next?

Michael Leiter

This doesn't really strategically change the challenge we face with ISIS. The problem is that the president is focused on names and individuals — he said himself that he just wanted Baghdadi dead throughout his time in office.

He clearly thinks that that ends the threat. But simultaneously, our best friends the Kurds have been undermined and were told that this was all about the oil money. And we have hundreds of ISIS fighters who are not just loyal to Baghdadi, but to ISIS as a group, who have been released, and we've also lost— to a great extent — our ability to collect intelligence across eastern Syria.

That's the problem. We may have taken out Baghdadi, but we voluntarily left an area where ISIS is and where we could collect intelligence, like that which supported this raid. We now have the inability to obtain important information like we did just two short weeks ago.

Alex Ward

So if Trump wanted to more thoroughly defeat ISIS, leaving northern Syria was the wrong move?

Michael Leiter

If we had a comprehensive strategy to defeat ISIS, by definition it would've included a continuing presence that we just gave up. It also would've included a tight partnership with the Syrian Kurds who have been our best allies in this fight.

Alex Ward

Trump said we know Baghdadi was killed after DNA tests confirmed his identity. Does that mean we had his DNA before the raid even happened and compared it with what was gathered at the raid site?

Michael Leiter

Yes, we would've had to have his DNA or sufficient DNA from his relatives to know it was him.

Alex Ward

How would we have obtained that DNA?

Michael Leiter

I won't say.

Alex Ward

Okay, but to be clear: We would've needed DNA before the raid to compare it to the target's DNA in order to ensure who we killed was Baghdadi?

Michael Leiter

We have for a long time worked hard to have reliable ways to identify key leadership, and that includes DNA. And you can have DNA from the individual or enough from family to do what the president described.

Alex Ward

How long does it take to plan a raid like this? Obviously, it took years to find bin Laden and then a long time to plan the operation itself.

Michael Leiter

If you have weeks, you take weeks. But if you have 48 hours, you do it in 48 hours. It sounds like they had a series of weeks, approaching a month, and found an opportunity. But if this was a pop-up opportunity, the strike may have looked very different. We also have an ability to move extremely quickly when necessary. Moving quickly generally leads to less preparation and greater risk — you can't adjust to everything and plan for everything if you have a shorter amount of time. But this could've just as easily been a raid with only 24- to 72-hour preparation time.

Alex Ward

Should we worry about an increase in ISIS attacks over the coming days and weeks? *Michael Leiter*

We worried about that in the case of bin Laden. But ISIS isn't the kind of organization that has large-scale operations on the shelf. Do I think that there are one-offs that have been



radicalized that might take advantage of this using small-arms attacks in the US? Yeah, there's some possibility. That risk, while heightened, exists today and exists going forward — which is why the US needs a comprehensive strategy to defeat ISIS that goes beyond killing Baghdadi.

Alex Ward is the staff writer covering international security and defense issues, as well as a co-host of Vox's "Worldly" podcast. Before joining Vox, Alex was an associate director in the Atlantic Council's Brent Scowcroft Center on



International Security where he worked on military issues and US foreign policy. He also wrote the #NatSec2016 newsletter for War on the Rocks where he covered the 2016 presidential election and the candidates' views on national security.

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- <u>Counterterrorism Bookshelf: 12 Books on Terrorism & Counter-Terrorism-Related Subjects</u> by Joshua Sinai
- James Forest, *The Terrorism Lectures* (3rd Edition) Reviewed by Edward Valla
- <u>60+ Academic Theses on Victims of Terrorism, Violent Extremism, and Political Violence</u> Compiled and selected by Ryan Scrivens
- Recent Online Resources for the Analysis of Terrorism and Related Subjects
 Compiled and selected by Berto Jongman
- <u>Conference Calendar</u> Compiled by Reiniers Bergema

Killing Terrorist Leaders Gets Attention, But It Doesn't Stop Terrorism

Source: http://www.homelandsecuritynewswire.com/dr20191030-killing-terrorist-leaders-gets-attention-but-it-doesn-t-stop-terrorism

Oct 30 – For nearly two decades, American leaders have stressed the need to address the root causes of terrorism. More often, though, they focus on something else: killing terrorists.

Kathy Gilsinan writes in <u>Defense One</u> that

Much like the end of the territorial caliphate, Baghdadi's death won't end the group as a whole, or the threat it poses. The so-called kingpin strategy of pursuing terrorist leaders to defeat the groups they lead has had mixed results historically. In some cases, a group simply carries on with a designated successor, like al-Qaeda under Ayman al-Zawahiri following the death of bin Laden; in others, the death of a leader can fracture a terrorist group into violent, competing factions, as has been observed among some Mexican drug cartels. When the kingpin strategy "works" to end a terrorist group, the terrorism scholar Audrey Kurth Cronin has written, it tends to be in groups that are "hierarchically structured, young, characterized by a cult of personality, and lacking a viable successor."

ISIS young but famously loose in its structure; to the extent Baghdadi did enjoy a cult of personality, it may have faded with the loss of land, because much of the group's propaganda appeal came from holding territory. By the time he died, Baghdadi was a caliph without a caliphate.

His real operational role is, moreover, unclear. Bin Laden, who died in a similar special-operations raid into Pakistan in 2011, did offer direction and guidance to al-Qaeda from hiding, as documents recovered from his compound after his death show. But Baghdadi, rumored to have been killed



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or injured numerous times before yesterday's announcement, spent his last years on the run, reportedly with very little contact outside a small circle of people, avoiding the modern communications technology the group was otherwise famous for exploiting, for fear that cellphones could give away his location.

So why does the United States pour so many resources and risk so many lives in pursuit of such dubiously effective ends?

"The kingpin strategy provides instant gratification, and of course [addressing] root causes is something ... that takes years if not decades," Bruce Hoffman, a terrorism scholar at the Council on Foreign Relations, told me. Long-term investments in, say, political reform in the Sahel are not going to yield the kinds of results campaign ads are made of. The words Abu Bakr al-Baghdadi is dead speak to an immediate and tangible achievement, as well as a kind of justice.

There is also a "threat-mitigation" factor in the moment, said Nicholas Rasmussen, the former head of the National Counterterrorism Center. Even when striking at a terrorist leader worsens underlying conditions, for instance by incurring civilian casualties, doing so may still be a rational choice in the face of an imminent threat. You could stop the hunt for terrorist leaders in, say, Yemen, and focus on conflict resolution and political reform. "In the meantime," Rasmussen says, "I hope there's no underwear bombs."

Gilsinan adds:

The other problem is that there is no one root cause of terrorism, and some of the ones policy makers pointed to early after the September 11 attacks, such as poverty, have, research shows, turned out not to be strong drivers of terrorism at all. Even when a likely root cause is identified—civil war is strongly correlated with terrorism, for instance—what does "addressing" it mean? The Iraqi insurgency and the Syrian civil war helped drive the rise of ISIS; building peace in such contexts is a much more difficult and long-term proposition than even the most dangerous and complicated special-operations raid against a high-value target.

Flying Vehicles for Battlefield Uses

Source: https://i-hls.com/archives/95698

Oct 28 – US Air Force Research Lab at Wright-Patterson Air Force Base is launching a new initiative focusing on how a new type of flying vehicle could transport supplies and soldiers on bases and battlefronts.

The Agility Prime program will assist private companies in testing prototypes and technology for flying cars throughout the country.



In exchange for their interest and help, AFRL will offer companies the opportunity to test their flying vehicles in military air space. It will



allow companies to put their flying cars in action without having to jump through as many regulatory hoops required by the Federal

Aviation Administration for testing.

AFRL will be looking for a new flying vehicle that is either electric or some sort of hybrid that is able to take off vertically, said Daniel Goddard, director of venture capital partnerships with the lab. Electric vehicles make less noise and Goddard said they would allow the Air Force to conduct operations more discreetly in war zones than helicopters. A flying car that is

able to take off vertically, would also be useful in areas where no runway is available. According to military.com, AFRL is still determining the specifics of just how much it would like a new flying vehicle to do. Ideally, there would be different models that could carry a



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single person or several people, Goddard said. It would also be ideal, he said, for these flying cars to be able to transport anywhere from 500 to 2,000 pounds of cargo and have the potential to be equipped with weapons.

Reports have indicated that the DoD is exploring options to replace or reduce the usage of the V-22 Osprey tilt rotor aircraft with a flying car. The V-22 is an aircraft capable of lifting vertically off the ground like a helicopter while also being able to fly at high speeds and altitude like a fixed-wing plane, according to its manufacturer Boeing.

Rising costs have made the V-22 a prime target for a cheaper alternative, though no outright replacement program is in the works. While AFRL is focused on the use of flying cars in the military, NASA and some prominent private companies are looking at the potential vehicles for civilian use. A NASA initiative aims to accelerate the certification and approval of future air taxis while developing an "airspace system architecture" for the vehicles to fly within. It will also seek to develop flight guidelines and evaluate passenger perspectives on flying cars, according to the space agency's website. NASA is already working to develop a flight control system with help from Uber, the popular ride hailing smartphone app.

What America Never Understood About ISIS

Source: http://www.homelandsecuritynewswire.com/dr20191101-what-america-never-understood-about-isis



Nov 01 – The Islamic State indulged in some of the most ostentatious brutality and sadism of recent decades. If any extremist group deserves the adjective *evil*, this would be it. But it is precisely our disgust, which ISIS has well earned, that makes it difficult to talk about what the group was and what it meant—and what it may still mean.

The Washington Post was mocked for describing Abu Bakr al-Baghdadi as an "austere religious scholar" in the headline of its obituary after the ISIS chief was killed on October 27. (The headline was later changed.)

Similar criticisms were lobbed against Rukmini Callimachi and Falih Hassan, the authors of a *New York Times* story about Baghdadi's death, for describing various government services that ISIS provided in the parts of Iraq and Syria that it once controlled. Shadi Hamid writes in *The Atlantic* that the concern is understandable.

Perhaps talking about ISIS in terms of how it governed rather than how many it killed might provide it with a sheen of legitimacy after the fall of the group's so-called caliphate. But those wishing to focus almost entirely on the Islamic State's awfulness—to the exclusion of what made it successful—are falling into an analytical trap. After all, most Americans are presumably already aware that ISIS was a terrorist organization that did terrible things, so it's not as if highlighting ISIS's savagery, sex slavery, and killing of innocents fills an important gap in the public discourse. (Anyone unaware of this horrifying record is unlikely to be a reader of The Washington Post or The New York Times in the first place.) But, more important, one can recognize the extent of ISIS's brutality while also dispassionately discussing its relative effectiveness in certain aspects of governing. The bar for what counts as good governance in Iraq and Syria is quite low.

In 2015, at the height of the group's savagery, <u>academics and experts</u> did considerable work on how ISIS administered the areas it ruled. The logic was simple: The only way to prevent similar groups from emerging in the future was to understand what made ISIS distinctive. ISIS didn't come out of nowhere. There were reasons it was able to capture as much territory as it did. And the "marginalia" of governance was part of that story. This can be a blind spot. Western observers assume that brutal groups are bad at governing. This is true sometimes, but the opposite can also be true: The more brutal groups are better at it than the less brutal ones. As Yale's Mara Revkin explained in perhaps the <u>definitive account</u> of how ISIS governed:

Media coverage of the Islamic State frequently refers to the group's violent and seemingly archaic justice system without considering the institutional structures that enable this violence, or the broader function that it serves in the group's ambitious state-building project. Legal institutions make it easier for the group to capture and retain territory by legitimizing its claim to sovereignty, justifying the expropriation of the property and land of enemies, and building goodwill with civilians by ensuring accountability.

The notion that we should call ISIS the worst names we can muster and leave it at that is to set ourselves up for future failure. And that is worth worrying about, since there will be attempts to replicate ISIS's

governance model in the coming decades—even if that seems unlikely in the aftermath of the group's recent defeats. But we don't even need to wait. Right in front of us, as we speak, is an example of an extremist group—the Taliban—that effectively mixes brutality and "good (enough) governance" in Afghanistan.



EDITOR'S COMMENT: "If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle." (*The Art of War* – Sun Tzu). It is evident that Americans do not read much historic documents and this is why they achieve long standing results (aka lose the wars they are involved into). It would be interesting to study how *Alexander the Great* ruled his empire. Alexander wanted all the people he conquered to accept him as their ruler. He also intended to spread Greek culture. But he did not want to destroy the local customsand traditions of the various cultures across his empire. His goal was to bring the different peoples of these many cultures together under a single government. Alexander created a plan to achieve his goals. The plan had three key parts. First, he would spread Greek culture and ideas. Second, he would use religion to inspire loyalty. Third, he would show respect for the cultures he had conquered, and even adopt some of their customs. Read more

Law Enforcement's New Non-Lethal Non-Painful Weapon

Source: https://i-hls.com/archives/95782

Oct 31 - A new device, developed mainly for law enforcement agencies, is allowing officers to use force to stop suspects without



The device is about the size of an adult's hand. The cord is fired with the help of .380 charge blank, while a laser helps the operator with aiming the device.

Once the cord is fired and if it hits the target, it will wrap around the target's body until the barbs on the end of the cord get caught to the target's clothing. If the target's skin is exposed, then the barb will get caught in the target's skin, similarly to taser guns already used by law enforcement.

Wrap Technologies claim that the cord is strong enough to keep a person from raising his arms, if the cord is wrapped around the target's torso and arms. Once restrained, the wrap can be easily cut off with surgical scissors.

In order to not harm any bystanders, the device is recommended to be used only if the target has about 3 feet of free space near him.

The BolaWrap 100 has already seen live action according to Dailyadvance.com. SWAT teams in Texas were the first to use the device in the field. SWAT teams used smoke grenades to clear out a house and when the suspected hostage-taker tried to escape, officers deployed the BolaWrap to stop him from escaping.

www.cbrne-terrorism-newsletter.com

es, is allowing officers to use force to stop suspects without causing them any pain. The device is a safer, non-lethal alternative to the "unsafe" non-lethal methods of pepper

spray, tasers, etc. used by law enforcement to stop suspects. Developed by the Arizona based company, Tempe, the BolaWrap 100 is a handheld device capable of firing an eight-foot Kevlar cord with a barb at each end. Once fired,

the cord wraps itself around the target, safely restraining him until the police officer can take further action.

The device was created so that law enforcement agents can restrain suspect and take control of a situation without risking any injuries or deaths. Compared to bean bag guns, tasers, and pepper spray, the BolaWrap 100 is a much safer alternative.





It's about the oil, stupid: Trump wants to end the forever wars, except the one about oil and money

By Lucian K. Truscott IV

Source: https://www.salon.com/2019/11/02/its-about-the-oil-stupid-trump-wants-to-end-the-forever-wars-except-the-one-about-oil-and-money/

Nov 02 – Remember the lengths the Bush administration went to counter the argument that the real reason we invaded Iraq in 2003 was the oil? It was about weapons of mass destruction, until there turned out to be no WMDs. Then it was about bringing democracy to the Middle East, until that turned out to be harder than we thought it would be. Then it was about rebuilding Iraq, which wouldn't have needed it if we hadn't blown the place up to begin with. Then it was about fighting terrorism, which Iraq had had no part in exporting to the rest of the world in the first place.

It was about anything at all except the oil, even after it was revealed that the first thing Vice President Dick Cheney did at the very first meeting of the Bush cabinet after he took office was to pass around a map of Iraq showing its oil reserves divided up between major United States oil companies. This was in February of 2001, months before the attacks of 9/11, and more than two years before the first American units would cross the Kuwait border in the invasion of Iraq.

Oil had nothing to do with it, we were told. Our hands were clean. Our motives were pure.

One guy knew better. Donald Trump. <u>He tweeted back in</u> <u>2013</u>, "I still can't believe we left Iraq without the oil." "It used to be, 'To the victor belong the spoils," <u>he said at a</u> <u>"commander in chief forum"</u> in New York during the campaign in 2016. "Now, there was no victor there, believe me. There was no victor. But I always said: take the oil."

Axios reported last year that Trump brought up Iraq's oil in a 2017 meeting with Iraqi Prime Minister Haider al-Abadi. "So what are we going to do about the oil?" Trump suddenly blurted out. Al-Abadi replied, "What do you mean?," To which Trump said, "Well, we did a lot, we did a lot over there, we spent trillions over there, and a lot of people have been talking about the oil." According to Axios, "Al-Abadi, explaining in what we assume was his best *talking to a small child or very large idiot* voice, reportedly responded, 'Well, you know Mr. President, we work very closely with a lot of American companies and American energy companies have interests in our country."

Well, Trump is at it again, this time with more than campaign rhetoric or casual asides at meetings with Middle Eastern leaders. "We have taken it and secured it," <u>Trump said of Syria's oil during remarks at the White House</u> last Sunday, when he announced the killing of Abu Bakr al-Baghdadi, according to The New York Times. Latest reports are that after having moved about 1,000 troops out of northern Syria so

Turkey could invade the region and create a so-called "buffer zone," Trump is moving 900 troops back into northeastern Syria to "secure" the oil. "We may have to fight for the oil. It's OK," he said later. "Maybe somebody else wants the oil, in which case they have a hell of a fight. But there's massive amounts of oil." We might have missed our chance to take Iraq's oil, but Trump has a plan for the oil we're going to "secure" in Syria. "What I intend to do, perhaps, is make a deal with an ExxonMobil or one of our great companies to go in there and do it properly," he said.

Former military commanders and international law experts agree that "taking" oil from Syria or anywhere else violates the Geneva Conventions, the basic international treaty on the laws of war. "Trump comment US intends to keep the oil in Syria. Guard with US armored forces. Bring in US oil companies to modernize the field," <u>Gen. Barry McCaffrey tweeted</u>. "WHAT ARE WE BECOMING.... PIRATES? If ISIS is defeated we lack Congressional authority to stay. The oil belongs to Syria."

"Oil, like it or not, is owned by the Syrian state," said Brett McGurk, Trump's former top official in the war against ISIS. <u>According to The New York Times</u>, "Mr. McGurk said that Mr. Trump's first secretary of state, Rex W. Tillerson, had studied the issue and concluded there was no practical way for the United States to monetize its control over oil-rich areas."

"Maybe there are new lawyers now, but it was just illegal for an American company to go and seize and exploit these assets," Mr. McGurk said at a panel hosted on Monday by the Foundation for Defense of Democracies.

Trump is going to discover that there are other interests who have a voice in what happens to the oil beneath the sands of the Middle East. And he's dreaming if he thinks 900 American soldiers can protect the oil fields of northeastern Syria. According to <u>a story in The New Yorker by Robin Wright</u>, who has been to the Syrian oil fields, production is already off significantly. "At its peak, Syria produced less than four hundred thousand barrels a day, which generated about a quarter of government revenues. But, as a result of the eightyear civil war and U.S. air strikes on oil installations seized by ISIS, production is down ninety per cent, to only about forty-thousand

barrels per day," Wright reported. The recent Iranian drone attacks on oil



production facilities in Saudi Arabia should have taught Trump a lesson: Oil fields are extremely vulnerable targets. The thing about oil is that once it comes out of the ground, it is wildly flammable. Remember what the Iraqi military did to Kuwait's oil fields when were driven out during the first Gulf War? They lit half the country on fire. And even if you can get it out of the ground, oil must be transported either to coastal oil terminals for export or must be refined into gasoline and diesel fuel and other salable products. That means it must travel through pipelines or be carried overland in trucks. Either way, it's vulnerable to attack by insurgents who may have other ideas about what should happen to Syria's oil. If Trump thinks ExxonMobil or any other American oil company can just move into Syria and start pumping oil and making profits, he's dreaming. But the upside of his fantasy about "taking" Syria's oil is that he's showing his true colors. He won't commit troops to protect American allies like the Kurds, but he's all-in when it comes to going to war for oil. Trump is all about one thing: money. He has used his presidency as a source of profits for his family business since the day he was inaugurated, and now he wants to use the bodies of American soldiers so his pals in the oil business can "take" Syrian oil. Trump has finally found a forever war he believes in wholeheartedly: one based on theft and profit.

Lucian K. Truscott IV, a graduate of West Point, has had a 50-year career as a journalist, novelist and screenwriter. He has covered stories such as Watergate, the Stonewall riots and wars in Lebanon, Iraq and Afghanistan. He is also the author of five bestselling novels and several unsuccessful motion pictures. He has three children, lives on the East End of Long Island and spends his time Worrying About the State of Our Nation and madly scribbling in a so-far fruitless attempt to Make Things Better.

UK terror threat level downgraded from severe to substantial

Source: https://www.theguardian.com/uk-news/2019/nov/04/uk-terror-threat-level-downgraded-from-substantial-to-severe



EDITOR'S COMMENT: Why now? Brexit is on the way. Europe is prepared for the return of the European jihadists. Christmas festivities are only a month away. So, why now? And then, there is this remarkable posting at the <u>MI5's website</u>



writing "Threat levels in themselves do not require specific responses from the public. They are a tool for security practitioners working across different sectors of the Critical National Infrastructure (CNI) and the police to use in determining what protective security response may be required." Really? People should be taken by surprise instead of taking some pre-emptive security measures. It makes you wonder "do they really care about the people". And if threat level is only for security practitioners why bother to make a public announcement (notifying adverseries whem things are more lax or more alert)?



ISIS Tells Followers to Set Forest Fires in U.S., Europe

Source: https://freebeacon.com/national-security/isis-tells-followers-to-set-forest-fires-in-u-s-europe/

Nov 05 – A media outlet affiliated with ISIS has been instructing the group's radical

adherents to set forest fires in the United States and Europe to cause mass ecological disasters, according to posts on an internet forum dedicated to the terror group.

Read also June 2013 Special Collection on Pyroterrorism (click on photo – right)

At least four propaganda posters that have appeared on the pro-ISIS Quraysh media outlet have urged followers to "ignite fires" as part of an ongoing jihad against America and its allies.

"The first poster in the series was published in April 2019," according to the Middle East Media Research Institute, which tracks the radical forum. "The text reads: 'Oh monotheists [followers of ISIS], ignite fires in the forests and fields, and we are addressing especially those who live in Europe and America, for they are painful to them.""



The fourth poster, released on Monday, includes similar text: "Ignite fires in the forests of America, France, Britain, and Germany, for they are painful to them."

EDITOR'S COMMENT: Now that the Caliphate belongs to the past, the Western world wil face "real" asymmetric attacks and pyroterrorism is one of them. Arson materials can be found anywhere; no special skills required – just to watch the meteo phenomena that will multiply the arson potential. It can happen anywhere and in more than one location at any time and hve enough time to escape or hide. Summer time and high tourism season are the preferred periods of action but the climate change is offering opportunities all year round! Arsons can become devastating weapons of mass disruption with a destruction potential to given geographies. They should be taken seriously and countered with proper intelligence, collaboration and control of incoming ongoing human tsunami of illegal immigrants, refugees and returning European homeless jihadists.

Dozens of New Terrorist Organizations Emerge Each Year. Which Ones Will Become Most Dangerous?

Source: https://insight.kellogg.northwestern.edu/article/measuring-terrorist-groups-danger

Nov 04 – The number of terror attacks worldwide increased eightfold between 2000 and 2015. And the trend shows no sign of waning: each year, 61 new terrorist organizations emerge. Yet in the U.S., as in other countries, counterterrorism budgets have not kept pace. So how should agencies pick which groups to target with their scarce resources? Currently, those decisions involve some guesswork, since there's no sure way to tell which organizations will flame out and which will become the next ISIS or Ku Klux Klan.

A few years ago, <u>Brian Uzzi</u> realized that this guessing game was not so different from that



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faced by investors, who have to predict early on which companies are likely to succeed or fail. "I was thinking, 'It's too bad we can't go back in time to when ISIS was a fledgling startup, knowing that this fledgling organization was going to turn into this extremely deadly force," says Uzzi, a professor of management and organizations at Kellogg.

That kind of prediction may now be possible.

A new study from the Kellogg School reveals that you don't have to know much about a new terrorist organization to determine how dangerous it will become in the future. In fact, it's possible to predict from a group's first few attacks how lethal it will be over its lifetime. That could help countries target their limited counterterrorism resources more effectively.

We'll send you one email a week with content you actually want to read, curated by the Insight team.

How did Uzzi and his colleagues—<u>Adam Pah</u>, also from Kellogg, and Yang Yang of the <u>Northwestern Institute on</u> <u>Complex Systems</u>—gain such insight into terrorist groups? Rather than trying to understand the groups' leadership structures or geopolitical contexts, as others have done, the researchers decided to look instead at their resources and capabilities.

With this novel approach, they realized, "we'd be able to do the same thing with terror organizations that venture capitalists had been doing for decades with startups out in Silicon Valley," Uzzi says-that is, make accurate forecasts which ones would about be effective. "We did a lot of fancy mathematics and analytics," adds Pah. "But the idea is simple: think of these groups as traditional organizations that we know something about. That's all we did. If you think about a problem in a new light, you can actually find meaning in something that was previously seen as intractable."

Thinking of Terror Groups Like a Business

Previous research hasn't had much luck in predicting terror groups' future lethality. At best, other models could predict the average lethality of a terrorist group in a given country—but such predictions only tell you so much, especially since terror organizations vary widely in how much violence they actually inflict. These methods were a far cry from predicting how dangerous an individual group may become.

The idea that one could solve this problem by studying terrorist organizations like companies came "all of a sudden, one of the times we were standing around the white board for hours," Pah recalls. "The light bulb went on in all of our minds. 'They're organizations that commit horrific acts—but they're organizations."

But figuring out how to study the business of terrorist groups proved to be the tricky part. There's little information to go on: unlike corporations, terrorists don't issue quarterly earnings reports or send out regular press releases. What they do, however, is attempt deadly attacks—and these, at least, are well documented. So the researchers turned to the <u>Global Terrorism Database</u>, which provides information on the time, place, method, and lethality of attacks globally since 1970. They focused their attention on 342 terrorist groups that had survived for at least a year and committed at least 10 attacks—enough data to help them discern patterns.

"The question was, 'Well, how do we work backwards from what we can see to infer something about what's going on to generate that behavior?" explains Pah.

Which Terror Groups Are Most Dangerous?

When investors are evaluating a company, they pay close attention to two key aspects of the business: resources and capabilities. Resources, which tend to fluctuate over time, include things like cash flow and staffing levels. Capabilities remain stable and refer to areas of expertise or technological skill—for example, YouTube has a capability in video recommendation.

Both resources and capabilities have been shown to correlate with companies' success. So if you can calculate those factors, "then you've got a pretty good prediction about the lifetime effectiveness of an organization, whether it's a business organization or a terror organization," says Uzzi.

And fortunately, you don't have to see a balance sheet to estimate an organization's resources. Previous studies have shown that highly resourced companies tend to release new products at predictable intervals—think of Apple's annual iPhone updates, or the new model of Honda Civic that comes out every year like clockwork. "If you have a constant flow of money, you begin to plan into the future on the best use of that money," explains Uzzi. "And when you do that, you begin to plan when you're going to put your products out."

But when a company is struggling, updates and announcements tend to be erratic and unpredictable (think of the <u>final months of MoviePass</u>). "When product releases are haphazard and higgledy-piggledy in their timing, that usually means resources are running low," Uzzi says. "Companies act very opportunistically, because it's not worth planning. You don't know what you're going to have three months from now, so you might as well use it up now."

When the researchers examined the timing of terrorist attacks, they found an identical pattern at work: groups such as the Taliban whose attacks were regularly spaced tended to be more lethal, indicating that they likely had a larger war chest, while groups whose attacks were highly random were less dangerous, suggesting fewer resources.

Pah, Uzzi, and Yang used similar logic to estimate capabilities. Making large, highly lethal bombs is one capability; perpetrating knife attacks, which tend to kill fewer people, is another. Since capabilities—in this case, a group's method of attack—don't tend to change, the researchers reasoned that the number of fatalities from a group's first attacks is a good indicator of how many people it may kill in the future.

So, for each terrorist group in their dataset, the researchers first calculated the deadliness of their first five attacks. Then they compared the groups to one other in order to determine their relative lethality. This "allowed us to estimate whether they had powerful capabilities or relatively low-power capabilities," Uzzi says—without needing to know the specifics of how they operate behind the scenes.

With these rough estimates of resources and capabilities in hand, the researchers created a mathematical model that allowed them to estimate from early attacks how lethal the groups would become.

It doesn't take much input: the model can make highly accurate predictions from the timing and lethality level of just 10 attacks. Yet it was extraordinarily useful for predicting how lethal a terror group would eventually be.

"Basically, our predictive model beat or significantly improved upon all the other models out there that we looked at," says Uzzi.

Early Warning Signs of Deadly Terrorism

Quickly assessing how dangerous a terrorist organization will become has the potential to make a big difference. "The

distribution of terrorist attacks isn't normal at all," says Uzzi, as some go on to claim many lives while others fade out without causing much damage.

Similarly, even different regional branches of the same organization, such as Al Qaeda, can have wildly different resources and capabilities, meaning their lethality varies widely.

Distinguishing the serious threats from the minor ones is vital information in a world where counterterrorism resources are scarce, "and getting scarcer all the time," says Uzzi. "You really want to be able to direct them to where they're going to do the most good."

It's possible that security agencies globally have more detailed attack data than is available publicly in the Global Terrorism Database; adding this classified information to the new model might yield even better and more precise predictions.

But by publishing their methodology, have the researchers given terrorist organizations a way to conceal their true potential—say, by making their attacks appear more erratic? Uzzi believes this to be unlikely. But even if terrorist groups do learn about the model and try to cover their tracks by making their attack schedules more random, "they'll also undermine their ability to commit a destructive attack—because once you begin to do things more at random, the less effective you are in using your stable resources," Uzzi says.

"So, either way, it's going to reduce the destructiveness of the organization."

If you're worried about terrorism, worry about the Sahel

Source: https://www.gzeromedia.com/if-youre-worried-about-terrorism-worry-about-the-sahel

Nov 07 – Last week, Mali, an arid desert country in Western Africa with a predominantly Muslim population of 19 million, was struck by one of the deadliest jihadist terror attacks since Islamist groups took over its northern frontier some seven years ago. Islamic State militants later claimed responsibility for the attack on a military post that killed at least <u>fifty-four people</u>. The episode reflects a larger surge of jihadist violence in the vast Sahel region, which stretches across the southern edge of the Sahara Desert. Unrest there has already reverberated far beyond Mali.

How did jihadist violence come to the region?

The Tuareg ethnic group in northern Mali, one of the largest nomadic tribes in the Sahara, has long agitated for independence. In 2011, when neighboring Libya descended into civil war, many Tuareg rebels went to fight on the side of Colonel Muammar Qadafi. Amid the chaos that followed his death, the Tuaregs returned to Mali with a cache of powerful weapons.

Soon after, **Tuareg separatists** rose up, declared an independent state, and joined forces with **al-Qaeda and its local offshoots** to push out the state's military who they both despised. Jihadist groups — many of which <u>spilled out of</u> the the civil war in neighboring Algeria during the 1990s— have operated in the area for decades, gaining influence by exploiting local conflicts. In 2012, they <u>imposed Sharia Law across northern Mali</u>, undercutting much of the Tuareg rebels' newfound autonomy.

A weak and unstable Malian government, hobbled by corruption and a disgruntled military, has been

unable to respond effectively. Jihadist groups now control huge swaths of territory in central Mali and have spread southward into Burkina Faso, where a political crisis in 2014 dissolved the state's oppressive security apparatus and created an opening for jihadist groups to recruit disgruntled locals.





In 2013, Islamic State affiliates emerged and, in some instances, received funding from ISIS' financiers to carry out attacks. Deadly jihadist attacks on <u>busy</u> roads and <u>mosques</u> over the past few months have highlighted the increasing scope and sophistication of the insurgency, which has now_expanded east along the border with Ghana, Togo, Benin and Niger.

Throughout the region, extremists have grown their ranks by preying on popular resentment over poor opportunities for education, employment and prosperity. A ferocious cycle of <u>droughts</u> in recent years has only made matters worse, inflaming conflict among ethnic groups over resources. And with the <u>population</u> of Sahel countries like Mali and Niger set to

double in the next twenty years, these pressures will only increase.

The threats facing the people of the Sahel are clear and urgent. But they also threaten the West directly. Facing an uptick in migrant arrivals from North African countries that touch on the Sahel, **European countries are worried** about two things: human traffickers who operate in the region, as well as the possibility that jihadists may infiltrate migrant groups bound for Europe. The EU has dedicated resources to stabilizing the Sahel, so far with mixed success. France has <u>deployed troops to Mali</u> since 2013, but the mission has faced stumbling blocks as battle-hardened jihadists who know the terrain often shield themselves amongst civilians.

American special forces have recently played a more <u>direct role</u> in military raids in places like Niger and Somalia, relying on local partners to locate militants identified as potential threats to American citizens or embassies. With the collapse of the Islamic State's self-declared "Caliphate" in Iraq and Syria, the US military is increasingly fearful that fighters could move through tumultuous Libya into the Sahel, bringing more sophisticated arms and tactical knowhow into that region. The last thing the United States wants is for the region to become a safe haven for international terror groups the way that Somalia or Afghanistan were in the 1990s, or the way that ISIS was more recently.

Climate change, extremist violence and poverty have created a combustive situation in a part of Africa often overlooked amid a broader focus on Islamic extremism in the Middle East. But as the power of local and foreign jihadist groups continues to grow, the threats to the region's people, and beyond, are quickly rising.



– Realistic Training

Source: https://tacticalblueprint.com/simunition-realistic-training/

UK: Theaters to ban the phrase 'ladies and gentlemen' under new gender-neutral

guidelines

Source: https://voiceofeurope.com/2019/11/uk-theaters-to-ban-the-phrase-ladies-and-gentlemen-under-new-gender-neutral-guidelines/

Nov 06 – Under new gender-neutral guidelines, theater audiences in the UK will be liberated from utterly oppressive phrases like 'ladies and gentlemen'. At the same time, Equity, a trade union for actors, has strongly advised against any appearance-based compliments directed at performers.

Proponents of the new policy argue that they'll create a more equitable environment for LGBT performers and members of the audience who view themselves as neither male nor female, the Daily Mail <u>reports</u>.

LGBT activists contend that phrases like 'ladies and gentlemen', that have been used at theaters for decades, are inherently oppressive and exclude individuals like singer Sam Smith who identifies as 'non-binary'.

The actor's union is urging all theaters operating throughout the UK to introduce and uphold 'gender-neutral terminology for collective calls, both front of house and backstage'.

Additionally, Equity's set of new guidelines also advises against compliments performers on 'appearance, clothing, voice, quality, identity or being brave'.





The National Theater in London has fallen into line, saying that although it was still using the phrase 'ladies and gentlemen' in some announcements, that it would it a priority to phase these phrases out.

This photo was accompanying this article

The Royal Shakespeare Company has also followed suit, announcing that it would 'strive to create environments which welcome and support trans people and people who identify their gender as fluid'.

Responding to the new gender-neutral guidelines, Nica Burns, the co-owner of Nimax Theater, said: "Coming to the theatre is a shared and communal experience in one single auditorium and we want to please our audience and

give them a great evening. We wouldn't want anyone to feel offended or annoyed." In October, London's Old Vic theater – a theater that was originally established in 1818 – replaced male and female bathrooms with gender-neutral offerings instead.

EDITOR'S COMMENT:

Box was intentionally left blanc



Barracuda and partner IDE won the competition between 45 companies participated in the European project OCEAN 2020. The new USV, **Sea Raider**, is a 6.8m vessel able to achieve speed of 48 knots with cruising autonomy of 300 nmi.

The Next Chapter of ISIS and al-Qaeda: Strategies and Attack Plans

Source: https://www.hstoday.us/subject-matter-areas/terrorism-study/the-next-chapter-of-isis-and-al-qaeda-strategies-and-attack-plans/

Nov 04 – ISIS is regrouping with a new strategy following the defeat of the physical Caliphate in Iraq and Syria, an August analysis shows. And al-Qaeda has not gone away – in fact, the terror group is "bouncing back" but following a different path than ISIS. They are competing



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with each other for leadership of the Islamic extremist movement, and the battleground might well be here in the West.

These are some of the conclusions reached by Dr. Asaad Almohammad, a senior research fellow with the Program on Extremism at George Washington University, who specializes in using primary sources, in a <u>report</u> for the International Centre for Counter-Terrorism – The Hague. In particular, he has studied the leading databases of jihadist activity, including the widely used Global Terrorism Database, and has examined the groups' rhetoric and their own strategic publications.

The international Islamic extremist movement is dominated by ISIS and al-Qaeda, both organizations with global reach. There are

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Tourists	0.40						
Food or Water Supply	0.00						
Airports and Aircraft	0.60						
NGO	I 0.33 0.18						
Other	0.13						
Violent Political Party	1.26						
Government (Diplomatic)	0.29	15					
Educational Institution	0.66						
Transportation	0.89						
Journalists & Media	1.59	0					
Utilities	1.41	2					
Religious Figures/Institutions	1.72	6					
Unknown	1.19	.73					
Business	3	78 5.36					
Terrorists/Non-state Militia		7.09					
Government (General)	3.	19 11					
Police		10.6	14.03				
Private Citizens & Property			2	1.67			44.52
Military	-				28.01		45.66
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also many other regional and national groups who compete, cooperate, merge and fight in the various theaters around the world.

They share the basic objective of establishing a state for the Ummah – the pious Muslim community – based on their strict Islamic principles, using offensive jihad as the method.

There have always been differences in their approach – ISIS initially moved decisively to establish a Caliphate under its direct rule. Al-Qaeda favored the more gradualist approach and made extensive use of local front organizations, such as al-Nusra in Syria and the ruthless al-Shabaab in Somalia. The strings of smaller jihadi movements were focused on their own areas of operation and effectively pursuing a strategy of localization.

In recent years ISIS seemed to totally eclipse al-Qaeda. Their surge in Iraq and Syria seemed unstoppable. But setback and defeat came, Almohammad noted, and he believes now that the organization is focused on survival and reverting to its guerrilla origins. The focus will be on attacking the near enemy – Islamic governments in the Middle East who they feel oppose the purity of their ideology – with only occasional attacks against the far enemy, aka the West, necessary to maintain its

profile versus al-Qaeda. They will avoid attacks on fellow jihadis.

Al-Qaeda would naturally favor the gradualist approach and the focus on the near enemy and using spectacular terrorist attacks against the far enemy to drive recruitment and build its own image.

"Central to AQ's incremental approach is winning the hearts and minds of local populations, in part through establishing alliances with local rebels and tribes as well as establishing sharia courts to influence the social and ideological discourse of populations it seeks to control," Almohammad wrote. "The group views these undertakings as preconditions to establishing a viable state for the Ummah. AQ contends that IS's failure to account for these factors short-circuited its expansive state-building efforts."

What should we expect going forward? Almohammad believes that ISIS can no longer pursue expansion in the short term. Instead, it is focusing on a combination of guided or directed attacks against the West, to maintain its status within the Salafi-Jihadi Movement, combined with local attack operations to polarize communities and bring marginalized elements into its movement. As far as al-Qaeda goes, it is refocusing on local theaters and winning hearts and minds of local populations. But it has a reputation for attacking Muslim targets and al-Shabaab plays a large part in this, which does not help its aim.

Significantly for the West, the report notes that the continuing competition between al-Qaeda and ISIS may lead to more terrorist action on the global stage.

"With AQ bouncing back and IS's possible desire to maintain its comparative advantage on the global stage, a scenario in which both players try to outbid and outperform each other on this front should not be dismissed," Almohammad wrote.

Both al-Qaeda and ISIS have the capacity and strategic motivation not only to cause local revolution, but to pursue attacks in the West. Their ultimate objectives have not changed, and competition between them drives them to maintain the fight.



Read the full report

Phil Price is a multilingual writer and translator based in London, UK. A graduate of Oxford University, Phil went on to hold senior management positions in several major British and German companies, and spent time living and working in Germany and Poland as well the UK. For HSToday, Phil reviews the latest findings from academic research and international studies into all aspects of international terrorism and presents the key trends and insights.

Islamic State returnees cloud anniversary of Paris attacks

Source: http://www.startribune.com/islamic-state-returnees-cloud-anniversary-of-paris-attacks/564844512/

Nov 13 — France commemorated the fourth anniversary of the Islamic State attacks that struck the heart of Paris with a solemn reading Wednesday of the names of 131 dead, and



the growing certainty that the group's recruits will return home in increasing numbers.

Three squads made up almost entirely of French and Belgian fighters for the Islamic State attacked the country's national stadium, the Bataclan concert hall, and bars and restaurants in the city center, in the deadliest attack committed by the group in Europe. All but one of the attackers died.

Wednesday's commemorations of the Nov. 13, 2015, attacks were clouded by the impending return of more European recruits for the Islamic State — many of them women and their children. Turkey's president has promised to deport foreign supporters of the group, even if their home countries don't want them.

"These gates will open and these IS members who have started to be sent to you will continue to be sent. Then you can take care of your own problem," Turkish President Recep Tayyip Erdogan said ahead of a trip to Washington.

Since 2015, Turkey has returned around 250 French citizens, including many children born in Iraq and Syria. Turkey also has an agreement with Belgium, reached after a Belgian

former Islamic State fighter linked to the Paris attackers was deported back to Europe and took part in the attacks that devastated Brussels in February 2016.

Laurent Nunez, a ranking official in France's Interior Ministry,

said around 500 people are currently imprisoned on terrorism convictions and that all will be watched closely after they are freed.

But he said the threat remains high for people radicalized at home. "This is the threat we fear most, this homegrown threat that is the most difficult to detect," he said Wednesday.

Turkey deported citizens of the United States, Denmark and Germany on Monday and announced plans to expel seven other German nationals, two Irish nationals and 11 French nationals.

The U.S. national remained in a

heavily militarized no man's land between Turkey and Greece for a third straight day. Greek officials have said Turkey tried to expel the man to Greece, which refused him entry.

France has reluctantly accepted its own returning citizens. Four women are on the verge of being deported from Turkey with their seven children.

Among them is Tooba Gondal, a British resident who was dubbed the Islamic State "matchmaker" for recruiting European girls and women to marry fighters, according to Jean-Charles Brisard of the Center for the Analysis of Terrorism. Gondal, who had appealed unsuccessfully to Britain to take her back, has French citizenship.

The French Association for Victims of Terrorism has called for its government to bring Islamic State supporters home.

But public sentiment runs high against the returnees across Europe. Polls show an

overwhelming majority want the families — even



children — to stay in Iraq and Syria.

Britain has refused to accept anyone and, like Denmark and the Netherlands, has taken the additional step of stripping many of their citizenship. Britain's policy has been challenged in court, while courts in Germany and Belgium have ordered the government to take back women and children.

Thomas Renard, a researcher with the Egmont Institute in Belgium, said the dilemma was entirely foreseeable almost

from the moment hundreds of Europeans started to leave for the war zone in Iraq and Syria.

"Now governments are no longer in a position to decide," Renard said.

There's an added element of unpredictability because so many of the surviving European members of Islamic State are women, along with their children, he said. Many of the men died in battle, airstrikes or are in detention in Iraq or Syria.

Pool Re publishes UK Terrorism Threat and Mitigation Report 2019

Published: Wednesday, 13 November 2019 09:31

Source: https://www.continuitycentral.com/index.php/news/resilience-news/4616-pool-re-publishes-uk-terrorism-threat-and-mitigation-report-2019

Pool Re has releases a new report which reviews the UK's terrorism threat landscape and shares detailed findings on trends in targeting and tactics.

The UK Terrorism Threat and Mitigation Report 2019 includes:

UK Threat Overview

While the UK fortunately has experienced few terrorist attacks since 2017, the country continues to face a heightened threat from terrorism. Alongside the lasting threat from Islamist extremism, the growth of the far-right and a potential resurgence by dissident republicans means the country faces attacks from an unprecedented range of actors. In the report Pool Re's Chief Resilience Officer Ed Butler examines how businesses can improve their resilience in the face of enduring and multifarious threats.

Unconventional attack methodologies

In recent years, the adoption of novel technologies by terrorists has accelerated. The report assesses the risks posed by the proliferation of drone technology, its use by terrorists and the efficacy of countermeasures. The increasing use of CBRN weapons and offensive cyber operations by nation states and implications for terrorism is also examined.

The economic impact of terrorism

Andrew Silke, Professor of Terrorism at Cranfield University, explores the relationship between terrorist ideology, strategy and target selection, and details why and how some terrorist groups seek to inflict catastrophic economic losses on targeted countries.

The future of terrorism risk assessment

Alexander Babuta, Research Fellow in National Security Studies at the Royal United Services Institute, assesses the viability of artificial intelligence as a counter-terrorism tool, examining its advantages and shortcomings and offering a view on how best to embed the technology in counter-terrorism practice.

Daesh's post-caliphate

While Daesh has lost the last of the territory it once held in Iraq and Syria, the group remains a potent threat to the West. Eden Stewart, Senior Analyst at Pool Re, looks at how the group is likely to adapt its strategy and communications to its new situation, and what the implications are for UK security.

FBI Releases Lone Offender Terrorism Report

Source: http://www.homelandsecuritynewswire.com/dr20191114-fbi-releases-lone-offender-terrorism-report

Nov 14 – The FBI's Behavioral Threat Assessment Center (BTAC) On Wednesday released its Lone Offender Terrorism Report. The study, reflecting BTAC's focus on past terrorism and targeted violence events, reviewed 52

lone offender terrorist attacks within the United States between 1972 and 2015.

BTAC is a national-level, multi-agency, multi-disciplinary task force focused on the prevention of terrorism and targeted violence through the application of behaviorally based



operational support, training, and research. The task force conducts research in order to learn from past events, enhance and improve future prevention efforts, and provide training opportunities.

The FBI says that the BTAC study compared numerous offender motivational factors encompassing their backgrounds, family and social networks, behavioral characteristics, radicalization, attack planning, and bystander observations. The study focused on offenders who carried out their attacks independently of any direction from a terrorist

group or organization.

"Through BTAC's extensive experience working threat cases, the FBI was wellpositioned to analyze the study materials through an operational lens and offer observational recommendations based on BTAC's findings," the FBI added. "Data from FBI case files and other law enforcement records, including some classified materials, also contributed to the richness and guality of BTAC's review and subsequent report. Because of BTAC's operational approach, looking beyond the mere numbers, the research team was able to identify and articulate substantive suggestions and considerations to improve prevention efforts."

The FBI notes, however, that prevention is more than just a law enforcement effort. "Law enforcement is working diligently to improve its collaboration and coordination with other government entities, community mental health and social services, probation and parole, educators, and private sector partners to appropriately share information necessary to further assess the threat and to take action to mitigate the threat," the FBI says.

The report says that prevention efforts are enhanced by the early recognition and reporting of suspicious behaviors by those individuals around a person of concern, such as family members, peers, or other community members. Bystanders need guidance to recognize concerning behaviors and overcome natural resistance to reporting.

Lone Offender Study of Lone Offender Terrorism in the United States

The lessons BTAC learned from the study revealed similar findings from other past FBI and academic research on pre-attack behaviors, stressors, and risk factors exhibited and experienced by previous attackers. The BTAC discovered that while the attackers in the study were ideologically motivated lone offenders, they were rarely completely isolated and alone. The report also found that while predicting lone offender terrorism is not possible, it may be preventable with increased bystander education and awareness in recognizing concerning behavior and reporting it to authorities as soon as possible.

"The FBI's research in the Lone Offender Terrorism Report is an invaluable tool not only for the FBI but for our law enforcement partners and other multi-disciplinary threat assessment teams," said Assistant Director John Selleck of the FBI's Critical Incident Response Group. "It is also our goal that this report successfully enhances the public's education and awareness of these types of attacks. By closely studying past lone offender behaviors and sharing the findings, we enhance our collective efforts to prevent future attacks and save lives."

Proposed Asylum Fees Are Part of a Bid to Make Immigrants to the U.S. Fund **Their Own Red Tape**

Source: http://www.homelandsecuritynewswire.com/dr20191114-proposed-asylum-fees-are-part-of-a-bid-to-make-immigrants-tothe-u-s-fund-their-own-red-tape

Nov 14 - The Trump administration wants to make people fleeing persecution in their home countries pay for something they've long gotten for free: the right to apply for asylum in the United States.

Sarah R. Sherman-Stokes writes in The Conversation that as an immigration attorney and a law professor who has represented people seeking asylum for over a decade, "I believe this change, which could go into effect as soon as mid-December following a monthlong comment period, would be not just cruel but also unusual."

At present, only Iran, Australia and Fiji charge fees to would-be asylum-seekers. Sherman-Stokes adds:

Making immigrants escaping harm and persecution shoulder the cost of processing their paperwork is in line with other trends in U.S. immigration law







over the last several decades. Fees for everything from green cards to naturalization are not only common but increasingly costly and mandatory.

In my experience, charging a fee would create a significant barrier for people who flee to the United States to escape trauma and persecution. I'm also concerned that the government plans to make no exceptions. Without any possibility of a fee waiver, those who can't pay this fee would be unable to seek asylum. She concludes:

one thing is clear. Most asylum-seekers come with nothing. What little savings they have are often used to pay for their journey to the United States and their basic needs upon arrival.

Making it harder for asylum-seekers to access protection is sure to leave many in dire straits.

EDITOR'S COMMENT: This might be a good idea for Greece as well! And it has more logic compared to delivering all their valuable possesions like the Danish law requests.

Global terrorism in 2018

Source: https://www.start.umd.edu/pubs/START GTD Terrorismin2018Overview FactSheet Oct2019.pdf



In 2018, there were more than 9,600 terrorist attacks around the world, which killed more than 22,980 people, including 7,290 perpetrators and 15,690 victims, according to the Global Terrorism Database™.

FACT SHEET

2018 was the fourth consecutive year of declining global terrorism since terrorist violence peaked in 2014 at nearly 17,000 attacks and more than 45,000 total deaths. The total number of terrorist attacks worldwide decreased 43% between 2014 and 2018, and the total number of deaths decreased 48%. Regional trends varied substantially.

Al-Qaeda *vs.* Islamic State | Breakdown of terror groups

Source: https://www.telegraph.co.uk/news/2019/11/19/britain-country-worst-affected-terrorism-eu-study-reveals/

Who leads al-Qaeda and Isil?

- Ayman al-Zawahiri has led al-Qaeda since the death Osama bin Laden. His most probable successor is Hamza bin Laden.
- Abu Bakr al-Baghdadi remains leader of Isil but is believed to have recently fended off a coup.

How many fighters do they have?

- According to the Council on Foreign Relations, al-Qaeda is undergoing a "resurrection". It has up to 20,000 fighters in Syria, up to 9,000 in Somalia, 5,000 in Libya, 4,000 in Yemen, and others in Afghanistan, Bangladesh and Egypt.
- Last year the US military estimated there were up to 17,100 Isil fighters in Irag, and 14,000 in Syria. Many have now been captured or fled.

What territory do they have?

- Al-Qaeda's affiliates control territories in numerous countries including Somalia, Syria and Yemen.
- At its 2015 peak, the Isil "caliphate" was roughly the size of the UK, but it was eliminated in early 2019.



How much money do they have?

- Al-Qaeda had an estimated 2017 annual income of \$300 million from activities such as smuggling, "taxing" civilians, kidnap ransoms, and clandestine donations.
- Several years ago, when it controlled oil fields, Isil had an annual income estimated at \$3 billion, making it the wealthiest terror organisation in history. Forbes estimates the group's 2017 annual income at a relatively paltry \$200 million.

How does their methodology differ?

- In recent years al-Qaeda has concentrated on backing local jihadist groups, mainly in the Middle East and Africa. That may be about to change.
- Isil attempted to establish its own nation state in the Middle East. When this ambition was thwarted, it concentrated on
 inspiring terrorists in the West to carry out attacks.






Ft. Hood Chemical, MP Soldiers test new decontamination system

Source: https://www.army.mil/article/228417/ft_hood_chemical_mp_soldiers_test_new_decontamination_system

Oct 10 – Military Police joined Chemical Soldiers here to conduct operational testing of a new decontamination system for vehicles and other ground-based platforms.



<complex-block>

Part 1: Oxidizer; Part 2: Activator; Part 3: BioActivator



JGPD-HME consists of three packets containing different



powders that are mixed with water to create a solution designed for use against chemical and biological agents.

First use of JGPD-HME by Soldiers from 3rd platoon, 181st CBRN Company occurred at West Fort Hood on a hot afternoon.

With a play on words, CBRN Spec. Ameer Davie said, "Using JGPD was a sweaty experience. JGPD was as easy as one, two, B."

Working with U.S. Army Operational Test Command, the Soldiers were part of data collection efforts provided to the Army Evaluation Center to inform senior Army leaders on how effective and suitable JGPD-HME will be during training and in real-world operations.

"JGPD-HME provides Warfighters a decontaminant that is compatible with fielded and future applicators and should significantly reduce the logistics

footprint," said Sgt. 1st Class Crystal Wright, JGPD-HME Test NCOIC with OTC's Maneuver Support and Sustainment Test Directorate.



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JGPD-HME provides decontamination for tactical vehicles, shipboard surfaces, crew-served weapons, and individual weapons that have been exposed to chemical or biological contamination.



Decontamination guidance for hospitals

Source: <u>https://www.londonccn.nhs.uk/_store/documents/decon-guidance-for-</u> hospitals.pdf

The Decontamination guidance for hospitals has been developed to assist health services prepare practicaldecontamination and mitigation strategies for a chemical, biological, radiological (CBR) or HAZMAT-emergencies. The guidelines provide principles for managing decontamination and highlight important issuesthat health services need to consider when managing patients involved in a CBR or HAZMAT emergency. Health service intervention strategies for CBR type incidents need to consider immediate decontamination ofself-presenting casualties without contaminating the emergency department or other areas of the hospital. The guidelines identify important hospital staffing preparedness activities, especially protecting staff involved in direct contact with contaminated patients. As part of the planning and preparedness process, it is importantfor hospitals to develop relationships with their local fire services, who may be able to offer assistance duringthese types of emergencies. The guidelines were developed by a multi-agency working group that included expert representatives fromhospitals, DHS, the Victorian ambulance and fire services.

Did you know?

Fuller's Earth is a claylike material, normally with high magnesium oxide content and comes in two main varieties comprising the minerals montmorillonite or palygorskite (or a mixture of the two). Can be used (if available) for the personal dry decon of CWAs in liquid form.

<u>e</u>

Mass Casualty Decontamination Guidance and Psychosocial Aspects of CBRN Incident Management: A Review and Synthesis

By Holly Carter and Richard Amlôt September 27, 2016 · PLOS Research Article Source: http://currents.plos.org/disasters/index.html%3Fp=28867.html

Introduction: Mass casualty decontamination is an intervention employed by first responders at the scene of an incident involving noxious contaminants. Many countries have sought to address the challenge of decontaminating large numbers of affected casualties through the provision of rapidly deployable temporary showering structures, with accompanying decontamination protocols. In this paper we review decontamination guidance for emergency responders and associated research evidence, in order to establish to what extent psychosocial aspects of casualty management have been considered within these documents. The review focuses on five psychosocial aspects of incident management: likely public behaviour; responder management style; communication strategy; privacy/ modesty concerns; and vulnerable groups.

Methods: Two structured literature reviews were carried out; one to identify decontamination guidance documents for first responders, and another to identify evidence which is relevant to the understanding of the psychosocial aspects of mass

decontamination. The guidance documents and relevant research were reviewed to identify whether the guidance documents contain information relating to psychosocial issues and where it exists, that the guidance is consistent with the existing evidence-base.

Results: Psychosocial aspects of incident management receive limited attention in current decontamination guidance. In addition, our review has identified a number of gaps and



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inconsistencies between guidance and research evidence. For each of the five areas we identify: what is currently presented in guidance documents, to what extent this is consistent with the existing research evidence and where it diverges. We present a series of evidence-based recommendations for updating decontamination guidance to address the psychosocial aspects of mass decontamination.

Conclusions: Effective communication and respect for casualties' needs are critical in ensuring decontamination is completed quickly and effectively. We identify a number of areas requiring further research including: identifying effective methods for communicating in an emergency; better understanding of the needs of vulnerable groups during decontamination; effective training for emergency responders on psychosocial issues, and pre-incident public education for incidents involving emergency decontamination. It is essential that the psychosocial aspects of mass decontamination are not neglected in the pursuit of solely technical solutions.

A Novel Hospital-Based Mass Casualty Decontamination Facility for Hazardous **Material Disasters**

By Ponampalam R, MBBS, FRCS, FAMS, GDOM

Department of Emergency Medicine, Singapore General Hospital, Singapore Toxicol Forensic Med Open J. 2019; 4(1): 18-23

https://openventio.org/wp-content/uploads/A-Novel-Hospital-Based-Mass-Casualty-Decontamination-Facility-for-Hazardous-Material-Source: Disasters-TFMOJ-4-129.pdf

Since the Sarin incident in the subways of Tokyo in 1995, there has been an unprecedented increase in the use of chemical agents on civilian populations internationally. This scourge of chemical terrorism has been



relentless worldwide and is likely to continue to be a public health issue that needs to be addressed by the relevant authorities as part





of national disaster preparedness and response. One aspect of chemical disasters involves the need for mass decontamination of chemically-contaminated casualties from the scene. The traditional role of hazardous materials civil defence experts in providing such decontamination of victims in the prehospital setting is limited by many factors. The presence of congestion in densely populated areas in a highly built up environ-ment of modern-day cities, compounds the timeliness of putting up cordons and crowd control and hence delays the prompt set up of such mobile decontamination facilities close to the incident site. The expected side

disaster preparedness. This review presents an innovatively designed rapidly deployable hospital-based decontamination facility that has served a tertiary care hospital in Singapore for the last 2 decades in being prepared for managing mass casualties arriving from a chemical disaster in a timely manner.



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Morocco's latest terror arrests renew a focus on chemical weapons

Source: https://africatimes.com/2019/10/28/moroccos-latest-terror-arrests-renew-a-focus-on-chemical-weapons/



Oct 28 – Authorities in Morocco say they found chemical agents in a cache of weapons and other items seized Friday, during raids on what they called a terrorist cell likely aligned with Islamic State.

The raids happened near Casablanca, and in Chefchaouen and Ouazzane, according to a statement from the Bureau central d'investigation judiciaire (BCIJ). The BCIJ authorities said seven people were arrested in the raid, one of many as Morocco seeks to stamp out extremist elements that have plagued neighboring nations.

The BCIJ continued its investigation on Sunday, exploring desert terrain in a region where the terror cell is suspected of having an interest. They said they seized Islamic State flags and other materials from the cell members, as well as the chemicals linked to making bombs.

A security spokesman interviewed on Moroccan

television said Rabat has become more focused on the threat of chemical weapons and implemented a new plan earlier this year to protect the country of threats that go beyond car bombs and suicide vests. Chemical terrorism threats are a priority.

While Morocco has been more fortunate than some regional states in terms of fatal terrorist attacks, the nation was <u>shocked last</u> <u>year</u> by the deaths of Louisa Jespersen of Denmark and Maren Ueland of Norway, young tourists who were killed by extremists near Imlil. It was believed to be the first such attack since a 2011 bombing in Marrakech.

Application of miniaturized sensors to Unmanned Aerial Vehicles, a new pathway for the survey of critical areas

By D. Di Giovanni, F. Fumian and A. Malizia Journal of Instrumentation, Volume 14, March 2019 5th International Conference Frontiers in Diagnostcs Technologies (ICFDT) Source: https://iopscience.iop.org/article/10.1088/1748-0221/14/03/C03006/pdf

During the latest decades, an increasing of threats associated to Chemical, Biological, Radiological and Nuclear events (CBRNe) took place. For what regards break-out of chemical and radiological compounds, several episodes have occurred, such as unwanted industrial leakage, intentional use of chemical weapons by non-state actors or smuggling of nuclear material, that, by materializing a global threat, have conducted to casualties the actors involved, inter alia fire brigades and military first responders. Concerning the equipment provided to these operators, huge progresses have been done in portable detectors, now able to employ numerous different working principles and technologies. Nonetheless, especially during the survey phase after a CBRN release, the operators enter in a potentially contaminated area without knowing type and amount of the contamination, running the risk of losses during the reconnaissance. On the other hand, nowadays we are witnessing a worldwide spread development of Unmanned Aerial Vehicles (UAV), with countless uses in different fields. They have founded fruitful implementation across civil and military ground in aerial photography, express shipping, gathering information during disaster management, thermal sensor drones for search and rescue operations, geographic mapping of inaccessible locations, severe weather forecasting. What if we could

send one or more of these flying platforms equipped with CBRN sensors, geolocalized, able to collect samples and to detect in real time a contamination? Subsequently, once the CBRN incident occurrence is confirmed, after the analysis of collected samples is likely to determine the chemical compound or the radiation emitter



involved and the level of contamination. If all this is made feasible, we will be able to minimize or completely avoid the exposure of personnel, moreover it will be determined the exact position of the hotspot and better supported the choice of personal protective equipment to be used to enter in the hazard area. Finally, time will be saved by an early UAV survey, while waiting to obtain the safety permissions for entry in the area.

Treatment for sulfur mustard lung injuries; newtherapeutic approaches from acute to chronicphase



By Zohreh Poursaleh, Ali Amini Harandi, Ensieh Vahedi and Mostafa Ghanei

Chemical Injuries Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran Source (full paper): <u>https://link.springer.com/content/pdf/10.1186%2F2008-2231-20-27.pdf</u>

Objective: Sulfur mustard (SM) is one of the major potent chemical warfare and attractive weapons for terrorists. Ithas caused deaths to hundreds of thousands of victims in World War I and more recently during the Iran-Iraq war (1980–1988). It has ability to develop severe acute and chronic damage to the respiratory tract, eyes and skin. Understanding the acute and chronic biologic consequences of SM exposure may be quite essential for developingefficient prophylactic/therapeutic measures. One of the systems majorly affected by SM is the respiratory tract thatnumerous clinical studies have detailed processes of injury, diagnosis and treatments of lung. The low mortality ratehas been contributed to high prevalence of victims and high lifetime morbidity burden. However, there are nocurative modalities available in such patients. In this review, we collected and discussed the related articles on the preventive and therapeutic approaches to SM-induced respiratory injury and summarized what is currently knownabout the management and therapeutic strategies of acute and long-term consequences of SM lung injuries.

Method: This review was done by reviewing all papers found by searching following key words sulfur mustard; lung; chronic; acute; COPD; treatment.

Results: Mustard lung has an ongoing pathological process and is active disorder even years after exposure to SM. Different drug Table 1 Treatment of lung effects of SM-exposed patients in vitro

Reference	Authors, Year, Country	Design of study/Intervention(s)	Participants	Result/s
[2/]	Wigenstam et al. 2009, Sweden	Dexamethasone liposome-encapsuled vitamin E	Mouse	Effective
[30]	Hoesel et al. 2008,USA	Alpha/gamma-tocopherol	Rat	Effective
		NAC+ alpha/gamma tocopherol		
[35]	Sawyer et al. 1998. Canada	L-thiocitrulline	Chick embryo	Effective
[31]	Sawyer 1998, Canada	L-NAME	Chick embryo	Effective
[36]	Paromov et al. 2008,USA	NAC	intercellular macrophages	Effective
3/	Atkins et al. 2000,USA	NAC	Endothelial cells	Effective
[38]	Hultén et al. 1998, Sweden	внт	Alveolar macrophages	Effective
		NAC		
[39]	Anderson et al. 2000,USA	NIA	Rat	Ineffective
		NAC		Effective
[40]	Gao et al. 2010,USA	azithromycin, clarithromycin, erythromycin, roxithromycin	Alveolar macrophages	Effective
[41]	Guignabert et al. 2005. USA	Doxycycline	Guinea pigs	Effective
[42]	Van Helden et al. 2004, Netherlands	surfactant curosurf	Guinea pigs	Effective
		salbutamol		More effective
[43]	Raza et al. 2006, USA	Doxycycline	Human lung epithelial cells	Effective
[44]	Anderson et al. 2009	Aprotinin	Rat	Effective
[45]	Yourick et al. 1992	NIA	Guinea pigs	Ineffective
[46]	Wilde and Upshall, 1991	Esters of cysteine	Rat	Effective
[47]	Zboril et al. 2012	zero-valent iron nanoparticles ferrate(M)/(III) composite	Invitro	Effective
[48]	Boskabady et al. 2011	Nigella sativa	Guinea pigs	Effective
		Nigella sativa i dexamethasone		
[49]	O'Neill et al. 2010	AEOL 10150	Rat	Effective

*Niacinamide (NIA),N-acetyl cysteine (NAC), L-nitroarginine methyl ester (L-NAME), Aeolus(AEOL-10150) a small-molecule antioxidant analogous to the catalytic site of superoxide dismutase, Butylated hydroxytoluene (BHT).

classes have been studied, nevertheless there are no curative modalities for mustard lung.



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Conclusion: Complementary studies on one hand regarding pharmacokinetic of drugs and molecularinvestigations are mandatory to obtain more effective treatments.

Trio admit possession of mustard gas at old RAF base

Source: https://www.nwemail.co.uk/news/national/17899285.trio-admit-possession-mustard-gas-old-raf-base/



Sept 12 – Three people have admitted possessing the chemical weapon mustard gas at a former RAF based used in the Second World War.

Martyn Tasker, 39, Michaela Tasker, 31, and Stuart Holmes, 50, were arrested after containers filled with the highly noxious substance were discovered in Lincolnshire woodland in October 2017.

From left, Stuart Holmes, Michaela Tasker and Martyn Tasker

At Lincoln Crown Court on Thursday, the trio all admitted possession of mustard gas canisters and discharging mustard gas into fresh inland waters.

Holmes also pleaded guilty to depositing mustard gas in a manner likely to cause pollution of the environment or harm to human health.

Police declared a major incident after the canisters were discovered on the former RAF Woodhall Spa site at Roughton Woods.

Bomb disposal officers had to be called in and further testing was carried out on the substance at the Government's specialist Porton Down military research laboratory in Wiltshire.

First World War mustard gas bombs were recovered by divers from the bottom of Stixwould Lake near Woodhall Spa (Royal Navy/PA)

Two people who found the canisters needed hospital treatment for burns and respiratory problems, but were released after treatment.

The hiahlv dangerous gas, a chemical warfare agent, causes severe irritation to the skin, eyes, and lungs of those exposed, and was used during the First World War.

Michaela Tasker, who was tearful throughout the hearing, alongside Martyn Tasker and Holmes, spoke to confirm their name, date of birth and their pleas.

Divers undergoing decontamination during the operation (Royal Navy/PA)

The Taskers, both of Longdales Road, Lincoln, and Holmes, of Witham Road, Woodhall Spa, were granted unconditional bail and will be sentenced on a date to be fixed.



Snapshot: Preparing for the Consequences of a Chemical Attack

Source: https://www.newswise.com/articles/snapshot-preparing-for-the-consequences-of-a-chemical-attack



This graphical representation of the Chemical Consequences and Threat (CCAT) Tool shows how the six main categories of targets feed into the Medical Mitigation model.

Oct 29 — Is the U.S. ready for a chemical attack on the homeland? With the very real possibility of a chemical attack in public spaces like stadiums, religious buildings, museums and theaters, or even contamination of the food or water supply, the U.S. needs to be prepared to take appropriate action to save lives. This means having security measures in place to prevent or minimize the attack. It also means having effective medical responses that consider the quantity of medical supplies needed, transportation of those supplies to the scene, and medical facilities and personnel to care for the injured.

That is why the Department of Homeland Security (DHS) <u>Science and Technology Directorate</u> (S&T) has developed a suite of models at S&T's <u>Chemical Security Analysis Center</u> (CSAC). These models help federal agencies analyze threats, vulnerabilities and consequences of potential attacks to prioritize resources for the most effective defense and response.

The Chemical Consequence and Threat (CCAT) Tool, part of S&T's All-hazards Countermeasure Assessment and Planning Tool (CAPT WEB), can rapidly calculate the number of people who would be killed or injured from a chemical release, the factors that might make the release catastrophic, and the current ability to respond to such an emergency. The CCAT Tool, which has a library of 184 chemicals and 37 representative targets, allows users to quickly evaluate the severity of an event and the impact of various response and mitigation strategies. The approach captures the inherent uncertainty of these events by randomly sampling values of key parameters, such as weather conditions, chemical mass used, population density, evacuation times, and calculating the result many thousands of times. These results ultimately highlight opportunities for investment to make the defense of the nation more robust.

Background

The <u>Homeland Security Presidential Directive-22</u>, which is currently being updated, requires analysis of chemical terrorism as a critical element of the nation's domestic chemical defense policy.

"To support this analysis, CSAC's Chemical Hazard Characterization Program allows DHS to understand what is happening with chemical events around the world, what we need to plan for now domestically, what we may need to plan for in the future, and what actions have the largest effect on our ability to prevent or respond to an attack," said Rachel Gooding, Senior Research Scientist at CSAC.



In 2012, CSAC started developing a desktop tool that could rapidly calculate the expected consequences from a chemical release and the impact of the response. The input data, which characterizes the hazard, targets and the public health response, is included in the models as default values or distributions providing a fast and flexible platform for users. Typically, 10,000 calculations are performed in two to three minutes to provide the user with a range of possible outcomes, including the best case, worst case and most likely outcome.

How does CCAT work?

CCAT is a planning tool that consists of six different consequence models, which cover different types of targets. The tool calculates the number of people who are expected to receive a life-threatening, severe or moderate injury based on the concentration and toxicity of the chemical, how long they were exposed, as well as emergency responses including sheltering in place, evacuations or food recalls. Additionally, a medical mitigation model characterizes the current ability to respond and treat people considering available resources, number of people impacted and, and how quickly medical intervention is needed. The analysis helps users evaluate the potential severity of an event and the impact of various response and mitigation strategies, such as more, better or faster countermeasures or the impact of detection or evacuation, and even the impact of others affected on the ability to effectively respond to a large- scale chemical event.

As it only takes milliseconds to run a single simulation, analysts can rapidly identify sensitive parameters and choke points, and can explore the boundaries of what is possible in a response.

Transition and future plans

CSAC has transitioned the software to several U.S. partners and is currently working to transition the capability to a U.K. partner. Current and future U.S. partners include the Johns Hopkins Advanced Physics Lab (which has been using CCAT to support work for DHS), Department of Defense, Combatting Terrorism Technical Support Office, and more. The tool has already been used by the Transportation Security Administration to provide mission support on aviation security, by the Chemical Facility Anti-Terrorism Standards program to assess theft and diversion scenarios, by the food industry to identify and protect vulnerable contamination points and by international partners to analyze the impact of stockpile management strategies and to provide pre-event analysis for special events.

CCAT is one of four characterization tools included in the CAPT Web Suite, which cover biological, radiological and nuclear hazards, in addition to chemical threats. A similar platform to analyze explosive threats is in development and could be ready in late 2020.

"Tools like CCAT provide a systematic and analytical way of prioritizing what we should protect against, how we can best protect against it, what hazards need to be better characterized through experimental work, and where the smartest investments are," said Gooding. "This is a way of making sure federal dollars are spent the wisest way possible to understand and defend against the most consequential threats we are facing. Ultimately, that is why we are doing it – to save lives."

First medical product cleared in U.S. for use on certain injuries caused by sulfur mustard





"Our top priority is saving lives during national emergencies. To do so, we must make safe and effective medical products for all the illnesses and injuries stemming from the serious health security threats confronting our nation," said Robert Kadlec, M.D., Assistant Secretary for Preparedness

and Response (<u>ASPR</u>) at U.S. Department of Health and Human Services. "This product

clearance is the latest step in delivering on that promise to the American people."



The ASPR's Biomedical Advanced Research and Development Authority (<u>BARDA</u>) provided technical expertise and funding to support the studies necessary to show that the product, <u>SilverIon</u>, is appropriate for use on first- and second-degree skin burns caused by exposure to sulfur mustard.



"Chemical weapons like sulfur mustard cause horrific, painful, and life-altering injuries, yet in the 100-year history of sulfur mustard use, no medical countermeasures existed – until now," added BARDA Director Rick Bright, Ph.D. "At BARDA, we are excited to have supported the first cleared product for use on skin injuries caused by sulfur mustard. This clearance exemplifies BARDA's ongoing commitment to our partners and the nation as we seek out promising technologies and products to improve our nation's health security and protect Americans."

Argentum Medical, LLC, has received FDA clearances for multiple indications for Silverlon since 2003 and in that time the wound dressing has been used extensively by the U.S. military to treat burn and blast wounds. Silverlon dressings also are used widely by the healthcare and first responder communities.

"The FDA plays an important role in preparing our nation for a range of threats, including chemical, biological, radiological, and nuclear threats, providing guidance and support for the development of medical countermeasures that can be used safely, effectively and reliably during public health emergencies," said Acting FDA Commissioner Ned Sharpless, M.D. "The expanded indication for this first-of-its-kind wound contact dressing to include management of certain injuries caused by sulfur mustard vapor exposure demonstrates our commitment to working closely with our federal partners, including BARDA, to expedite the availability of medical

countermeasures essential for managing responses to chemical weapons attacks in both civilian and battlefield settings." BARDA's support for this additional indication began in 2013 as part of the federal government's effort to repurpose approved drugs and medical products to save lives and reduce injury in an attack on the United States.

This multi-purpose approach has proven to be cost-effective in preparing mass casualty emergencies from chemical, biological, and radiological agents. Repurposing products in widespread use additionally ensures first responders have a familiar product to use in a time of crisis.

Beginning in 2015, BARDA used <u>Project BioShield</u> authorities and the Project BioShield Special Reserve Fund to purchase Silverlon for the Strategy National Stockpile as part of BARDA's burn countermeasure program. BARDA continues to work with Argentum on studies necessary for FDA clearance of Silverlon for use on radiation burns.

Silverlon is a silver-plated nylon dressing available commercially and used widely to aid in the management of acute skin wounds and first- and second-degree thermal burns. The silver plating helps kill bacteria within the dressing, and one dressing can be used for up to seven days. This allows for fewer dressing changes, which reduces the burden on caregivers and minimizes the pain and damage that would occur if the wound was disturbed.

Sulfur mustard was first used as a chemical weapon in World War I and can be released into the air, food or water. More recently the chemical was used in the Iran-Iraq war and in the Syrian Civil War.

Gas-Related Injuries at Base Hospital #28

By Anthony L. Kovac, MD

Kasumi Arakawa Professor of Anesthesiology, University of Kansas Medical Center, Kansas City, Kansas Source: http://www.kumc.edu/wwi/base-hospital-28/clinical-services/gas-injuries.html

Chemical warfare gases, notably chlorine, phosgene, and mustard, were first used as weapons during the First World War. The initial large-scale use of chlorine gas occurred at Ypres, Belgium, on April 22,1915, when 150 tons were released by German troops from 6,000 cylinders, leaving approximately 3,000 Allied soldiers incapacitated and 800 dead. Thus, gas weapons had relatively low mortality, but high morbidity. Then, physical and psychological healing added weeks, even months to recovery. Extensive medical resources were required for treatment of these patients. As the war progressed these gasses were delivered by artillery shells.

The first two chemical agents were inhaled chlorine in gaseous form (Cl₂) and phosgene (CCl₂O), both causing lung injuries, with recovery - in the best of circumstances - measured in days. The third gas was sulfur mustard (C₄H₈Cl₂S), a vesicant or contact blistering agent



which caused diffuse injury to skin, eyes, and even the respiratory tract if inhaled. Treatment and recovery times were most often measured in weeks to months.

The Base Hospital #28 Experience

Triage and care were initiated at first aid stations with subsequent transfer of gassed patients to casualty clearing stations, and then evacuation hospitals and base hospitals. At the National WW I Museum at Liberty Memorial in Kansas City, Missouri, medical records of numbers and types of gas-related injuries admitted to Base Hospital #28 (BH#28) have been preserved. From July 1918 through January 1919, this hospital treated 8,724 soldiers, including 930 with gas injuries. Treatment was supportive and included rehabilitative care. In BH #28's diagnosis registry, the majority of gas injuries were simply listed as "gas" or "gassed." Forty-nine entries included gas injury combined with one or more other types of injury, most commonly gunshot wounds or shell-shock. Sadly, many soldiers who suffered severe gas inhalation injuries died before being transferred to a base hospital, such as BH#28.

Read the rest of this article at source URL.

Therapeutic options to treat mustard gas poisoning – Review (2019)

Moghadamnia AA, Rafati-Rahimzadeh M, Rafati-Rahimzadeh M, Kazemi S. Therapeutic options to treat mustard gas poisoning –Review.Caspian J Intern Med 2019; 10(3):241-264. Source: http://caspjim.com/article-1-1687-en.pdf

Among the blistering (vesicant) chemical warfare agents (CWA), sulfur mustard is the most important since it is known as the "King of chemical warfare agents". The use of sulfur mustard has caused serious damages in several organs, especially the eyes, skin, respiratory, central and peripheral nervous systems after short- and long-term exposure, incapacitating and even killing people and troops. In this review, chemical properties, mechanism of actions and theireffects on each organ, clinical manifestations, diagnostic evaluation of the actions triage, and treatment of injuries have been described.



CBRN urban search and rescue training – as real as it gets

Source: https://www.dvidshub.net/news/350224/cbrn-urban-search-and-rescue-training-real-gets

Nov 01 – U.S. Army North Civil Support Training Activity (CSTA) certified the Chemical, Biological, Radiological and Nuclear (CBRN) training of Soldiers from the 3rd Platoon, 68th Engineer Company from Fort Hood, Texas during a two-night urban search and



would respond – with the same protective gear and equipment they would use in a real-world situation where they could be exposed to dangerous CBRN agents.

The CBRN training tested the platoon on multiple perishable skills that need to be regularly exercised in the event the unit is deployed within the homeland as part of the Defense CBRN

rescue exercise at a firefighter training facility here Oct. 22-23.

CSTA oversees the certification program's training exercises which prepare units to detect chemical agents, conduct decontamination procedures and provide first aid to exposed people who are referred to as casualties - while operating in rigorous CBRN conditions.

"This training is an eye opener with lots of detail and helps us to be ready physically and mentally," said 1st Lt. Michelle Kokoski, the platoon leader. "Army North provides realistic training to find our weaknesses and strengths."

CSTA requires Soldiers to train as they





Response Force. CSTA evaluators gauged the effectiveness of the unit's response procedures and how they adapted to the everchanging conditions.

"This training is important to the 3rd platoon because they are currently on mission supporting the Defense CBRN Response Force," said James Larsen, Chief of the Urban Search & Rescue Training Team, Civil Support Training Activity, U.S. Army North.

An assessment team jumpstarted the exercise by entering a suspected contaminated area to detect possible chemical agents, assess and report damage to critical infrastructure, and identify any possible chemical casualties who needed first aid and then extract them from the area. Next, an engineer team donned personal protective equipment and entered the area with prepared structural equipment to stabilize the infrastructure to protect response personnel and causalities for further rescue efforts.

During the second night of the exercise, Soldiers surveyed a simulated train wreck with causalities contaminated by a chemical agent. Similar to the first night, the team was tasked with detecting the agent, securing the affected area, and providing first aid to the casualties. Extraction was more difficult because casualties were trapped in vehicles crushed during the train wreck. Casualties also had to be moved to a decontamination site to receive additional screening and treatment and to avoid the further spread of the agent.

"[The] realistic training is important because it teaches us how to help civilians and save lives if an event like this happens," said Spc. Alfredo Hernandez, a carpentry and masonry specialist in the platoon. "We train to manage the situation... no matter what the circumstances dictate."

Army North's CSTA provides CBRN training year-round to soldiers all across the country to ensure that they are prepared to spring into action as part of the Defense CBRN Response Force.

Find Army North on Facebook, Twitter, and Instagram for more information on how we partner to provide Homeland Defense, Defense Support of Civil Authorities, and conduct Theater Security Cooperation with the Canadian and Mexican militaries in order to protect the United States and its interests.

EDITOR'S COMMENT: This is what is really missing! Field drills with realistic scenarios not only during the day but also under night conditions. Instead we stuck to tabletop and boring drills and at the end we always congratulate each other for a test well done (always). If a realistic training is also a "surprise" training, things would be much better and conclusions, more pragmatic.

Lincoln Laboratory Researchers Develop a Fabric That Can Sense Chemical Vapors

Source: https://www.domesticpreparedness.com/updates/lincoln-laboratory-researchers-develop-a-fabric-that-can-sense-chemical-vapors/

Nov 03 – Many people may recall using pH (or litmus) paper during high school chemistry experiments. The litmus test is a quick method of determining whether a liquid is acidic or basic by dipping a paper strip into the liquid and then observing the resulting color change.

Now, researchers in Lincoln Laboratory's Chemical and Biological Technologies Group and Advanced Materials and Microsystems Group are using a similar color-changing technique while developing a self-reading "pH fabric" that could help warn of dangerous chemical releases.

The fabric sensor is highly sensitive to chemical vapors and can automatically alert personnel wearing the fabric to the presence of harmful chemical vapors. This technology could help address the evolving threat of chemical releases, including those from industrial incidents or terrorist attacks.

"We are developing a unique, wearable fabric-based spectrometer that can detect the presence of a variety of chemicals in real time based on color-changing dye chemistry," said Richard Kingsborough, a member of the technical staff in the Biological and Chemical Technologies Group. "The goal is to build a sensor that is sensitive, lightweight, low power, and autonomous, yet provides that early warning that could save lives."

The fabric spectrometer is made by embedding a transmitter (in this case a light-emitting diode, or LED) within a polycarbonate fiber and a receiver (or photodiode) within a second polycarbonate fiber. These fibers are then

woven into a fabric in such a way that the LED is positioned next to the photodiode.

"There are a breadth of programs integrating semiconductor devices within a fiber," said materials scientist Lauren Cantley. "While this program also integrates LEDs into the fiber, what is unique is the need to specially formulate the properties of the polymer materials that



we use. Most other programs are using off-the-shelf thermoplastics, whereas here we are formulating our own polymers in order to control the optical absorption properties of the material."

LEDs are embedded into fibers that will be woven into the fabric spectrometer. Photo courtesy of the researchers.

After the LED and photodiode fibers are woven into a fabric, a substrate containing the color-changing dye is placed directly on top of the fabric. When operating, the LED shines light onto the dye layer, and a certain amount of light is reflected back and picked up by the photodiode. The amount of light that is reflected depends upon the color and absorption characteristics of the dye.



When the dye is exposed to a chemical agent, the dye changes color, and this color change subsequently alters the amount of light reflected from the fabric. For example, a pH-sensitive dye that changes from yellow (the acid form of the dye) to blue (the base form of the dye) can signal the presence of ammonia vapor, a basic chemical compound. That change is observed as a decrease in the red light that is reflected by the substrate.

This fabric spectrometer has the advantage of continuously monitors the wearer's surroundings and can give autonomous notification if it senses a chemical.

This system has already proven successful in detecting chemicals such as ammonia and formaldehyde. The research team's ultimate goal is to develop a two-inch-by-two-inch fabric patch that features a 16-element matrix, which would be able to identify all of the chemical warfare agent classes as well as a large selection of toxic industrial chemicals.

"I am very excited that we are working on a new way to provide early warning for the detection of chemical agents," said Kingsborough.

This research builds upon recent advances in fiber technologies and functional fabrics made possible through the Laboratory's Defense Fabric Discovery Center. At the center, staff have been experimenting with colorimetry — a process that performs chemical analysis via a color-changing chemical reaction — for several years through two investigative efforts, one funded by the Defense Threat Reduction Agency and another funded by the Advanced Functional Fabrics of America.

"This program provides a new technology for general awareness of chemical threats," said Roderick Kunz, who is the assistant leader in the Chemical and Biological Technologies Group. "This is a much-needed capability that private industry has thus far failed to deliver. In that regard, it is a perfect fit for the Laboratory's mission of technology in support of national and homeland security. Released by Lincoln Laboratory, Massachusetts Institute of Technology. Click here for source.

CBRN Realistic Training

Exposure

Source 1: https://www.ouvry.com/en/produit/sim-kit-h-v-and-g-simulants/

Source 2: <u>http://www.owrgroup.net/</u>; <u>https://www.facebook.com/owrgroup/photos/toxsim-kit-2-250-ml-high-viscous-toxsim-to-simulate-contamination-of-human-skin-/990502464310994/</u>

Detection

Source 3: https://www.argonelectronics.com/



Radioactivity

A textbook for First Responders Author: Romeo Gallo Source: http://www.aracneeditrice.it/aracneweb/index.php/pubblicazione.html?item=9788825508055

CBRN risk can not be addressed without adequate knowledge. Thought for the First Responder, the book confronts in particular the radiological risk, which can be manifested in civil defense as well as in the most typical of civil protection. Only an accurate analysis of the event that may occur time after time, proper use of appropriate instrumentation and knowledge of radiation protection measures can ensure the safety of rescuers and the population. The paper addresses both theoretical and practical aspects (radioprotection, dosimetry, detectors, contamination, transport) and has over 60 exercises carried out.



Romeo Gallo, ingegnere civile, è funzionario del Corpo Nazionale VVF presso il Comando Provinciale di Matera. Per il Corpo si è occupato di formazione CBRN, contribuendo alla stesura di apposite dispense, e della pianificazione delle specifiche emergenze. Ha conseguito il titolo di Master di II Livello in Protezione da eventi CBRNe, collaborando successivamente come docente nell'ambito del programma radiologico/nucleare. Esperto qualificato di secondo livello, è membro della Commissione per la Radioprotezione per la Provincia di Matera.



Education and training CBRNe awareness and preparedness Author: Sami Abdulla Alsaadi

Source: http://www.aracneeditrice.it/index.php/pubblicazione.html?item=9788825515534

The book proposal aims at finding out the level of awareness on the CBRNe substances and the preparedness of the public on the same. Are the members of public able to tell what these substances are? Has the public witnessed CBRNe attack? How does the emergency team respond to CBRNe attacks? It should be noted that the public comprises of fire fighters, flying doctors, emergency responders and anyone since the victim is limitless. This proposal can be used to determine the level of public awareness and preparedness on the explosives. It is, therefore, suitable for those training emergency responders. It is also relevant for community workers bestowed with the sole responsibility of creating public awareness (Markenson et al., 2005). However, this paper cannot be used for the

purpose of training as a resource material. Further research should be carried out to find how best to carry out public awareness.

Sami Abdulla Alsaadi is a professor at the University of Lancester BA in fire and rescue service management. In 2016 he obtained a master's degree in CBRN at the University of Tor Vergata in Rome. During the internship he had work experience in Emergency Planning Collage UK + Fire service Collage moreton in marsh United Kingdom. His main responsibilities were crisis management, emergency planning, strategic planning, media control and risk assessment.

RKhM-6 CBRN Reconnaissance Vehicle

Source: https://www.army-technology.com/projects/rkhm-6-cbrn-reconnaissance-vehicle/

The RKhM-6 Povozka is a chemical, biological, radiological and nuclear (CBRN) reconnaissance vehicle produced by Arzamas Machinery Plant of Military Industrial Company (VPK), for the Russian Army. It is an advanced variant of the RKhM-4-01 CBRN vehicle.

The 8×8 CBRN vehicle is designed to conduct chemical, radiological, biological and nuclear reconnaissance missions for CBRN reconnaissance elements of the Russian Armed Forces. It can transmit reconnaissance data to reconnaissance devices and command control centres.

The RKhM-6 vehicles were accepted by the Southern Military District in 2012. The vehicles are currently being tested by NBC reconnaissance units of the Southern Military District.

Arzamas Machinery Plant delivered four RKhM-6 vehicles to the NBC protection unit of a Russian military base in Armenia, in early-2016.



The NBC Brigade of the Western Military District in the Kursk region is expected to receive 20 RKhM-6 CBRN reconnaissance vehicles by the end of 2016.



RKhM-6 design and features

The vehicle is based on the hull of <u>BTR-80 armoured personnel carrier</u> (APC). The conventional layout accommodates the driver's compartment at forward hull, NBC laboratory in the middle and engine at the rear.

The crew enter and exit the vehicle through doors on either side of the hull. The vehicle also features vision blocks in the forward section of the hull. The forward-looking infrared (FLIR) device on the vehicle offers improved night vision to conduct operations at night.

CBRN detection equipment and systems

The RKhM-6 is equipped with more advanced NBC laboratory. The fully automated system is controlled by single personnel and enables the automatic detection of chemical and radioactive substances, with alarms ringing inside the vehicle if any such contamination is found.

The sensors aboard the vehicle can detect any type of radioactive contamination from inside the vehicle, and the crew can test the samples from within the vehicle.

The vehicle lacks special suits for dismounting troops in a radiation environment, but carries three sets of MOPP suits and filters. The biological sensors on the vehicle can detect biological molecules such as viruses, while the chemical detection optical devices use the onboard computer for analysis.



The vehicle can detect vapours and aerosols of toxic and hazardous substances in a contaminated environment of 10m² a minute. The vehicle runs at a speed of 20km/h-50km/h in accordance with the level and complexity of contamination.



The RKhM-6 is equipped with the battlefield management systems (BMS), and Perunit-V <u>satellite</u> navigation system based on GLONASS. The advanced meteorological suite provides coverage across 4km² of area or accurate direction up to 6km. It measures wind speed and direction, air samples, weather conditions, rain and snow.

A close look at the PHRDD-2B device

Armament and self-protection of RKhM-6

The RKhM-6 is armed with a turret-mounted 14.5mm heavy machine gun and a coaxial 7.62mm machine gun. The vehicle features automatic smoke grenade launchers and also carries smoke grenades inside the hull for reloading. It features spaced and heavier armour at the forward hull, while the sides and turret are hinged with aluminium and steel plates. The vehicle also integrates a reinforced roof and blast-resistant floor for protection against mine explosions.

Engine and mobility

The vehicle is powered by a KamAZ turbo-charged diesel engine mated to an automatic transmission. The engine develops a maximum power output of 300hp.

The vehicle is equipped with a central tyre inflation system and run-flat tyres for high mobility over different terrains. It has a maximum road speed of 80km/h and can attain a maximum speed of 10km/h in water, whereas the maximum endurance is 600km.

Second Sight MS – gas detector

Source: https://www.bertin-instruments.com/product/gas-detection/secondsight-ms-camera/

Second Sight MS is the only standoff gas cloud detector for real time surveillance and with source localization.

The Second Sight MS is a passive, long range chemical and toxic gas clouds detector that is ideally suited to military and civil security operations due to its compact, lightweight and modular design.

It has been designed for early warning and real time visualization of suspicious gas clouds. With its infrared sensor, it shows as an overlay the localization of dangerous gases such as toxic industrial gases or chemical warfare agents (nerve gases or vesicants).

Second Sight can identify the family of the gas and measure its path length concentration. With its unique gas X feature, it also detects gases that are not in the database, which is ideal when gases are impure, mixed or unknown. With a night and day infrared imaging capability and the largest Field of View (FOV) of any stand-off detector in the market, this tried and tested system is a clear favorite with military forces, law enforcement agencies and emergency responders around the world.

The only standoff gas detector for real time surveillance and with source localization.

It's the perfect solution for critical area surveillance and protection against chemical threats (chemical warfare agents and toxic industrial compounds).

Technology:

Infrared spectral imaging

Detection range and Field of View:

- Detection up to 1000m with 60×48° FOV
- Detection up to 2000m with 30×24° FOV
- Detection up to 5000m with 12×9° FOV

Detected gas:

- Gas X: detect all gas clouds that absorb in band III infrared
- Most CWA and TIC

Time to alarm:

in approx. 10 seconds

Scan mode vertical angle:

180° x 15° in less than 3 minutes

Dimensions & Weight:

- Head camera: 35 x 19 x 24 cm 5.2 kg
- Processing unit: 26 x 19 x 15 cm 5 kg

Temperature:

- 20°C to 45°C (operation)
- 20°C to 70°C (storage)

Ruggedized:

Mil Std 810-G

- Ingress protection:
 - IP65





908 Devices Addresses Emerging Novichok Nerve Agent Threat, Expands Capabilities for MX908 Chemical Detection Device

Source: https://908devices.com/news/908-devices-addresses-emerging-novichok-nerve-agent-threat-expands-capabilities-for-mx908-chemical-detection-device/



June 2019 – 908 Devices, a pioneer of analytical devices for chemical and biomolecular analysis, today announced the expansion of their MX908[™] multi-mission trace chemical detection device capabilities to include Novichok agents, an emerging chemical warfare threat. The company is debuting this enhancement in the mission mode at the 2019 International Association of Fire Chiefs (IAFC) International Hazardous Materials Response Teams conference in Baltimore June 13-16.

Following a 2018 UK attack, the U.S. Department of Health and Human Services released new guidance in January to first responders nationwide for Novichok chemical warfare agents (CWAs), also known as A-series agents or Fourth Generation Agents (FGAs). Novichok agents are more persistent than other nerve agents and can be as toxic as VX. HazMat and military chemical response teams need quick, confident answers in the event of an attack to minimize casualties and limit the spread of contamination. Until now, response personnel have had limited capability to detect and identify Novichoks in the field. The MX908 is the only commercially available field device that can identify

Novichoks at trace levels and deliver results within 60 seconds, expediting response times and increasing both public and responder safety.

"First responders must be equipped with tools that can adapt to novel threats as they arise," said Dr. Kevin J. Knopp, CEO and Co-founder of 908 Devices. "We proactively designed the



MX908 to address the continuum of emerging threats. A simple, immediately downloadable software update arms federal, military and civilian response teams for the ever-evolving threat landscape."

In addition to Novichok detection capability, the 2.1 software release also adds new V-series agents to the MX908 CW Hunter mission mode. The MX908 can now identify seven V-series agents, HD, and several G-series agents. The 2.1 update also includes performance enhancements for CW Hunter and Explosives Hunter mission modes, and new targets in the Drug Hunter mission mode.

The software will be available in July for existing MX908 customers.

908 Devices is host to two workshops at the IAFC conference, 'Outclassing Emerging Threats' and 'Field Identification of Controlled Substances'. Both focus on how first responders can best equip themselves to detect both known and potential threats, including fentanyl and FGAs. 908 Devices and leading detection technology and HazMat experts – including Dr. Christina Baxter of Emergency Response TIPS, LLC, David DiGregorio, the Director of Mass State Hazmat, Dr. Mike Weibel, the Assistant Project Manager of S&T JPM NBC Contamination Avoidance, and others – will also take part in a panel discussion on the emerging threat of Fourth Generation Agents and pharmaceutical-based agents, challenges in detection, and how teams need to rethink the way they respond.

CBRNe Country Profile – The Netherlands

Source: http://nct-magazine.com/nct-magazine-november-2019/cbrne-country-profile-the-netherlands/

The Netherlands is a party to all major CBRN agreements and has a decentralized response system. Since January 2010, the country has been subdivided into 25 safety regions. The latter connect local civil protection organizations with national governmental institutions. This political reorganization was the result of the <u>Dutch Security Regions Act</u> that laid down the rules for responding to crises, including to CBRN incidents. The Act demonstrates a shift in the Dutch attitude towards disaster management and that new

threats require a different strategy. Policymakers believed the municipal scale was not sufficient to handle large incidents. As a result, a more efficient and larger system involving 25 regional management boards was designed, with these boards in charge of fire brigades, the police and medical services in CBRN incidents. While disaster response is coordinated via regional management boards, the Dutch system still intends for each stakeholder to be a standalone unit in emergency response. Starting in 2010, the Directorate for



National Security set up guidelines through the '<u>Multi Response CBRNe' program</u>. The program's main objective is to increase the minimal expertise and capabilities of each stakeholder according to the subsidiarity principle. If possible, the organization closest to the public will be called to intervene in a crisis; if not, other municipal or regional bodies will be engaged before emergencies are dealt with at a national level. The whole process takes place under the purview of the Ministry of Interior. The "Multi Response CBRNe" program also carefully describes the responsibilities of each stakeholder in preparation and in response to incidents.

Read the rest of this article at source's URL.

EDITOR'S COMMENT: There are some photos accompanying this article some of which like the one shown above, should be more carefully selected (yellow arrow).



CBRNe Training: Interoperability & Multinational Cooperation Across Europe

By LTC Oliver Toderiška

Source: http://nct-magazine.com/nct-magazine-november-2019/cbrne-training-interoperability-multinational-cooperation-across-europe/

Just as in the past, CBRNe training still remains a priority for many reasons. All authoritarian regimes were, and are, willing to seize any kind of CBRN material for terrorist purposes. There are many examples of how strong their hope is for success is - and we must be on alert more than ever before.

Across almost all CBRN units across Europe, our missions are similar in definition:

- 1. To be prepared to deploy CBRN defense forces and the means to execute the full range of CBRN operations in supporting the Combined Join Task Force operations;
- 2. To be prepared to provide military support to the Ministry of Interior and the civil authorities in eliminating the threats of chemical, biological and radiological terrorism;
- 3. To provide military support in response to ecological accidents involving the release of chemical, biological and radiological materials.

Our mission is defined by only three sentences, but it remains as complicated as it is comprehensive.

CBRN units must cooperate with each other very closely. Standard operational procedures (SOPs) must come under strong validation through joint training. Slovakia's CBRN exercises are based on a scenario when all possible CBRN skills or capabilities need to be deployed. Ex Toxic Lance or Ex Toxic Valley are perfect examples of multinational cooperation in this matter, but with different philosophies and different units' participation. For many years these two exercises have provided us with a very strong foundation for participating in highly specialized and very unique training opportunities with other European CBRN units.

Read the rest of this article at source's URL.

After completing his military education in Chemistry Lt. Col Oliver Toderiska has served as commander in a CBRN platoon in 1990, advancing in his career through several positions including Senior leader officer and CBRN specialist in the General staff and commander of the Mobile Identification Laboratory of the CBRN Bn Rožňava. He was deployed in the Operation Desert Storm as second in command of the SLOVCON, and then to KFOR in Kosovo in 2008 and then deployed again in Afghanistan in 2016-2017 as SLOVCON commander. has participated as a training commander/developer in many courses for specialists or nation representatives from Slovak / international organization (Ministry of Interior, Ministry of foreign affairs, OPCW, UN OCHA, etc). Among his personal awards there is the medal of the President of the Slovak Republic in 2003, 2008 – NATO "Non-Article V" medal in 2008 and the medals of the Minister of defense of the Czech Republic and of the Slovak Republic for abroad service in 2003.

Development of an Algorithm for Calculating the Risk of Terrorist-CBRN

Bolduc DL, Marr J, King J and Dudley R (2012) Development of an Algorithm for Calculating the 'Risk' of Terrorist-CBRN. J Bioterr Biodef 3:117

Source (full paper): <u>https://www.omicsonline.org/development-of-an-algorithm-for-calculating-the-risk-of-terrorist-cbrn-2157-2526.1000117.php?aid=8945</u>



In order to avert a disaster from a terrorist chemical, biological, radiological or nuclear (CBRN) attack, it is important to study the likelihood of terrorists using CBRN weapons. This study reports on the development of an algorithm for calculating the 'risk' of a terrorist seeking CBRN weaponry with 67.3 percent prediction accuracy. The algorithm was developed through four phases, Phase I proposed independent variables likely associated with Terrorist-CBRN (T-CBRN) derived from our interpretation of the literature; Phase II involved constructing a 'Random Nations Matrix' from 74 countries or locations of the world selected at random, for correlating the proposed independent variables; Phase III entailed the construction of a multivariate model from the independent variables which met our

correlation criteria with T-CBRN; and finally in Phase IV, an algorithm was derived from the model design for calculating the risk of a terrorist seeking, acquiring and or using a CB.



Japan to permit antidote injections by rescue workers in cases of bioterrorism

Source: https://www.japantimes.co.jp/news/2019/11/14/national/japan-permit-antidote-injections-nondoctors-cases-bioterrorism/#.Xc5vYK9S_IU

Nov 14 – The health ministry said Thursday that antidote auto-injections by non-medical professionals, such as rescue workers (policemen and firefighters), will be permitted should toxic agents be dispersed in a terrorist attack.

The move is designed to prepare for any chemical terrorist attack in the run-up to next year's Tokyo Olympics and Paralympics.

Normally, antidote injections by people other than doctors or nurses would be a violation of the medical practitioners' law. But the ministry said that if a **chemical attack** occurs, early antidote injections are necessary for the treatment of victims.

"It is necessary to permit the use of auto-injectors by those other than doctors," the ministry said, citing as an example, workers transporting victims to hospital in contaminated "hot zone" areas, such as firefighters, police officers and Self-Defense Forces personnel.

These workers will be allowed to administer antidotes to injured adults if doctors are absent, there are too many injured people for doctors to handle, or three or more people are injured in an apparent **chemical attack**, the ministry said.

The ministry will notify the Fire and Disaster Management Agency, the National Police Agency, the Defense Ministry and the Japan Coast Guard of its decision.

Training on antidote injections will be provided to officials starting as soon as early next year.

EDITOR'S COMMENT: The mistake in the article's headline is obvious: there are no antidotes for bioterrorism pathogens!

We all know about ricin and abrin. What about these toxins?

VISCUMIN

Viscumin (Mistletoe lectin I, ML I), inevitable to the family of RIPs, was identified in the late 1980s as the main pharmacologically-

active ingredient of mistletoe (*Viscum album*) extract and is largely responsible for its toxicity (Krauspenhaar *et al.* 1999). Viscumin toxicity is high. The LD50 for mice with intraperitoneal administration are 2 µg/kg and is therefore comparable to ricin toxicity (Patocka *et al.* 2004) and acts by the same mechanism. Viscumin has a concentration-dependent activity profile unique to plant AB-toxins. It starts with lectin-dependent mitogenicity and then covers toxicity and cell agglutination, associated with shifts in the monomer/dimer equilibrium (Jiminez *et al.* 2006). When viscumin binds to its target cell, protein synthesis in that cell is interrupted as a result of the A-chain's enzymatic activity, like a ricin. This interruption induces a cellular stress response, which triggers the release of cytokines by the target cell and, at high viscumin concentrations, apoptosis of the cell (Thies *et al.*,



2005). Viscumin belongs to a group of selected substances, according to the Centers for Disease Control and Prevention, or the control of trade in dual-use products in the European Union (Duracova *et al.*, 2018).



VOLKENSIN

Volkensin is a lectin from Adenia volkensii (the kilyambiti plant) that is comparable in toxicity to ricin and that acts by the same mechanism (Wu and Sun, 2012). The toxin is a glycoprotein (mol wt. 62,000, neutral sugar content 5.74%) consisting of an A subunit (mol wt. 29,000) and of a B subunit (Mr 36,000) linked by disulfide and noncovalent bond (s) (Stirpe *et al.*, 1985). The plant is a relatively unattractive and toxic succulent plant found in Africa that appears to be of little interest. However, it has proven useful as a research reagent in neurology because of its ability to be taken up and transported by certain types of nerve (Wiley and Stirpe, 1987).

Although volkensin belongs to the same group of poisonous proteins as abrin or ricin, and its toxicity is comparable (LD50, intraperitoneal mice 1.38 μ g/kg) with ricin and abrin (Barbieri *et al.* 1984), it seems to differ in some respects

(Wiley and Stirpe, 1988). If it is injected in the rat dorsal hippocampus, volkensin is taken up



by nerve terminals in the injected area of the brain and retrogradely transported to the cell bodies originating the projection, which are killed by the toxin (Contestabile *et al.*, 1990). Volkensin-induced selective motoneuron death in the adult rat can be a useful experimental model for degenerative motoneuron disease (Nogradi and Vrbova, 1992). Experimental lesions and quantitative autoradiography were used to investigate the cellular distribution of neurotransmitter receptors in rats. Lesions were produced by intracortical injections of either volkensin or ricin. However, only volkensin is retrogradely transported and volkensin treatment causes significant loss of contralateral cortical pyramidal neurones. (Chessell *et al.*, 1997).

MODECCIN

Modeccin is a lectin from the roots of Adenia digitate an African succulent plant (Stirpe *et al.*, 1977) that is comparable in toxicity to ricin (Olsnes *et al.* 1982) and acts by the same mechanism (Refsnes et al. 1977, Olsnes *et al.* 1978). The plant does not seem to

have any significant uses, such as food or medicine and so is not available in quantities comparable to abrin, let alone ricin. However, the seed does seem to be readily available. The subunits were isolated of modeccin (subsequently referred to as modeccin 4B), purified from the roots of Adenia digitata by affinity chromatography on Sepharose 4B (Gasperi-Campani *et al.* 1978). They are an A subunit (mol.wt. 26 000), which inhibits protein synthesis, and a B subunit (mol.wt. 31 000), which binds to cells. Both subunits, as well as intact modeccin, gave single bands on sodium dodecyl sulphate/polyacrylamide-gel electrophoresis, but showed some heterogeneity on isoelectric focusing and on polyacrylamide-gel electrophoresis at pH 9.5. A second form of modeccin, not retained by Sepharose 4B, was purified by affinity chromatography on acidtreated Sepharose 6B: this form is subsequently termed modeccin 6B. Modeccin 6B has a molecular weight indistinguishable from that of modeccin 4B, and consists of two subunits of mol.wts. 27 000 and 31 000, joined by a disulphide bond. The subunits were not isolated because of their high insolubility in the absence of sodium dodecyl sulphate. As compared with modeccin 4B, modeccin



6B is slightly less toxic to animals, does not agglutinate erythrocytes, and is a more potent inhibitor of protein synthesis in a lysate of rabbit reticulocytes, giving 50% inhibition at the concentration of 0.31 mg/ml (Barbieri *et al.* 1980).

Source: Jiri PATOCKA. Highly Toxic Ribosome-Inactivating Proteins as Chemical Warfare or Terrorist Agents. International Review of the Armed Forces Medical Services; Vol 92/3 (September 2019); pp.39-48.

Security chiefs believe Jihadis are plotting a devastating chemical weapons attack in Britain

Source: https://stockdailydish.com/security-chiefs-believe-jihadis-are-plotting-a-devastating-chemical-weapons-attack-in-britain/

Nov 21 – Terror chiefs believe a devastating chemical weapons attack in Britain is now 'more likely than not', The Mail on Sunday can reveal.

The chilling assessment follows the interception of 'chatter' between senior figures in Islamic State (IS). The terror group has been inspired by the poisoning of former KGB agent Sergei Skripal and his daughter, Yulia, by Russian agents in March.

Before the novichok attack in Salisbury, the Government's Joint Terrorism Analysis Centre (JTAC) put the risk of a chemical weapons strike by jihadis at 25 per cent.

Security sources say that has now surged to more than 50 per cent. There are particular fears over the potential for a chlorine bomb to be detonated on the Underground. The threat is considered so severe that terror chiefs secretly met with emergency services bosses a fortnight ago to 'war game' their response to such an atrocity.

Teams, including officers from the Met Police's Emergency Preparedness Operational Command Unit (CO3) and officials from the London Mayor's office, were faced with a scenario of simultaneous attacks at Oxford

Street and Waterloo Underground stations by terrorists carrying chlorine bombs hidden in rucksacks.

When such devices are triggered, the relatively harmless liquid chlorine becomes a deadly vapour that mixes with fluid in the lungs and eyes of victims to form corrosive hydrochloric



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acid. The gas would be particularly dangerous in confined and densely packed Underground stations, especially for children and the elderly.

The recent simulation involved commuters being killed as the chlorine gas swept through trains and along platforms. Many more 'died' as terrified passengers fought to escape. It was concluded that up to 100 lives could be lost in such an attack, with hundreds more injured.

A security source involved in the exercise said: 'The chlorine vapour would be very localised and would last a few minutes before it evaporated. While fatal, the stampede to get out of the Tube station would cost far more lives than the chemical. That's why it is important to educate people about the threat of these weapons. The more they know, the less inclined they'll be to panic.'

Last night, Hamish de Bretton-Gordon, an expert on chemical weapons, said IS bomb-makers in Syria had already developed the necessary skills to make such devices and could pass such expertise to extremists in Britain.

He said: 'These tactics have been morbidly successful for IS in the Syria war zone, while the nerve-agent attack in Salisbury has shown that just a tiny amount of a chemical can have a huge impact.'

Responding to The Mail on Sunday's exclusive report, Security Minister Ben Wallace said last night: 'I have consistently warned that a chemical attack in the UK is getting more likely. We have well-tested plans to respond to an attack and minimise the impact, should an incident occur.'

Improvised Chemical Pressure Bomb

Source: https://info.publicintelligence.net/VFC-ChemicalBombs.pdf

There are several types of improvised chemical pressure bombs that can be constructed from easy to acquire materials. Two common variants of this device are described below.

- One Type, commonly referred to as a "Drano" or "Macgyver" bomb, is composed of a flimsy container (often a plastic soda bottle) partially filled with a liquid clog remover, such as Drano and small balls of aluminum foil. The sodium hydroxide in the liquid clog remover reacts with the aluminum in the aluminum foil creating quickly expanding gas, which builds up pressure in the container until it explodes, spraying hot chemical liquid which can irritate the eyes. Toilet bowl cleaner can also be used instead of liquid clog remover; here the active ingredient is hydrochloric acid, exposure to which can cause mucous membrane irritation, laryngeal spasm and pulmonary edema.
- A chlorine bomb consists of a container partially filled with rubbing alcohol and a chlorine tablet. Chlorine tablets are used in swimming pools and can be readily purchased at pool supply stores. Another type of chlorine bomb can be made from mixing equal parts of bleach and ammonia. Generally, a chlorine bomb is more harmful than the other types mentioned above because of the chlorine that is dispersed by the explosion. Chlorine gas is a choking agent, and when in gas form, it attacks the eyes and lungs within seconds, causing difficulty in breathing and skin and eye irritation, similar to tear gas and mace, at low exposure. At higher levels of exposure, chlorine dissolves in the lungs to form hydrochloric acid, which burns lung tissue and causes pulmonary edema. This type of bomb has been made on a much larger scale in Iraq using vehicle-borne improvised explosive devices.

EDITOR'S COMMENT: After reading the warning article above related to a future chlorine bomb detonated on the London's Underground (confined space + mass gathering of people) I make a small Internet search. It is true that chlorine bombs are easy to make – there are even videos in Youtube on how to do it (for fun ...). But the thing is that in all sources the "bomb" is composed on the spot and gives a few seconds "escape window" to avoid exposure to the chemicals released. How one can do the same in a crouwded metro train in plain view by tens of commuters? It has to be done very fast, preferably adjucent to the doors and need to very carefully calculate the time the car is arriving to the station in order to mix the ingredients and step out before the explosion. Perhaps the British security chiefs have something else in their minds to make this warning. Could be a kind of a "binary" device that

will use "corrosion effect" to mix the ingredients required to synthetize the explosive reaction and be able to put the whole thing into a backpack to carry it into the Underground. Of course, the combination of a few chlorine bottles with some low explosives and a clock might be more realistic and equally hazardous in crowded confined spaces.

www.cbrne-terrorism-newsletter.com







Septien



How emerging technologies increase the threat from biological weapons

Source: https://www.weforum.org/agenda/2019/03/how-emerging-technologies-increase-the-threat-from-biological-weapons/



March 2019 – Technological advances in the biological sciences have long presented a challenge to the governance frameworks that focus on biosecurity and preventing the proliferation of biological weapons.

Advances in biotechnology have, for example, made the manipulation of the genetic make-up of organisms—from bacteria to humans—faster, cheaper and easier.

However, these developments often interact with or are enabled by other technologies, including by those categorized as 'emerging'. The process of convergence of recent developments in biotechnology with other emerging technologies holds tremendous promise but also increases the possibilities for misuse of biotechnology.

Specifically, the convergence of technological developments could affect the development, production or use of biological weapons and thereby challenge governance approaches that aim to prevent the proliferation of biological weapons to both states and non-state actors.

The report, <u>Bio Plus X: Arms Control and the Convergence of Biology and Emerging Technologies</u>, examines the risks and challenges posed by this convergence.

Governance mechanisms

It analyses the extent to which concerns arising from new technological developments can be dealt with through existing governance mechanisms, and, based on the limitations identified, the authors recommend the actions needed by governments, international organizations, the private sector, and wider society.

Advances in three specific emerging technologies—additive manufacturing (AM), or 3D printing, artificial intelligence (AI), and robotics—could facilitate, each in their own way, the development or production of biological weapons and their delivery systems. This could be by enabling the automation of developmental or production steps that previously required manual manipulation or analysis by a human.

They could also provide new possibilities for biological weapon use and increase the exposure of digitized biological data and operating parameters to cyberattacks.

All three technologies are difficult to control, not least due to their dual-use nature, their digitization, and the fact that they are mainly developed by the civilian and private sectors.

However, the impact of these technologies on the engineering of biological weapons and their delivery

systems should not be exaggerated, as the expertise required to exploit these technologies

for the purpose of developing and producing biological weapons remains significant and continues to pose a barrier to most actors.



Limited coverage

The 1972 Biological and Toxin Weapons Convention (BTWC) is the central governance instrument for biological arms control. It is complemented by—or implemented through—a whole range of instruments, including export and import control measures; legislation, guidelines or standards on biosecurity and biosafety; regulations for the transportation of dangerous goods; and mechanisms to monitor relevant technological developments.

However, the existing governance mechanisms provide only limited and often indirect coverage of the applications of AM, AI and robotics. The governance frameworks either have not used, or cannot fully use, their potential to explore connections between biotechnology and these emerging technologies.

Treaty regimes and other governance instruments typically interact with each other much less than the respective technologies that they cover. An overarching question when viewing governance in the field of biosecurity through the lens of technological development and convergence is therefore how to better connect the relevant governance mechanisms.

There is a lack of understanding of these technologies, the associated risks and their potential impact on the activities, transfers or behaviour governed by the existing frameworks.

Dealing with developments in science and technology is far from a new issue. However, measures to address their impact must keep up with the dynamics of current developments. Therefore, improvements to governance instruments need to address the structural factors and new characteristics of new technologies that have a possibly significant impact through convergence with biotechnology.

Addressing the risks

The main conclusion is that, while new developments in these three emerging technologies could have an enabling effect in different steps of the development and use of biological weapons, the existing governance frameworks are ill-equipped to comprehensively address these risks.

To improve the ability to govern the convergence of biotechnology with other emerging technologies, concrete steps could be taken by national governments, regional organizations such as the European Union (EU) and international institutions, and by academia, the private sector and the DIY community.

National governments should more systematically assess technological developments, map domestic stakeholders, make use of parliamentary assessment mechanisms, increase resources for relevant authorities, and strengthen research on the detection, prevention, response and attribution of biological incidents.

Academic institutions should introduce obligatory courses on ethics, law and biosafety in all natural science curriculums

The EU should enhance engagement with the biotechnology industry and biosafety associations in the context of dual-use risks. The BTWC regime should reform some of its elements, including its working practices and stakeholder engagement, and create a BTWC Scientific Advisory Board. It could also raise the issue of convergence on its agenda and better address the potential for misuse of commercial biotechnology and emerging technologies.

Academic institutions should introduce obligatory courses on ethics, law and biosafety in all natural science curriculums, encourage work on interdisciplinary technology assessments and further strengthen the collaboration between national academies of sciences, particularly on addressing risks resulting from technological convergence.

The private sector should continuously strengthen its self-governance and compliance standards. The DIY community could organize workshop series on biosecurity for community laboratories and strengthen international efforts to foster responsible science and biosecurity awareness.

<u>Bio Plus X: Arms Control and the Convergence of Biology and Emerging Technologies</u>, Kolja Brockmann, Sibylle Bauer, and Vincent Boulanin, the Stockholm International Peace Research Institute

Japan is hoarding viruses to fight bioterrorism at the 2020 Olympics

Source: https://www.wired.co.uk/article/japan-imports-ebola-olympic-games

Oct 21 – As long as the current outbreak of Ebola virus in the Democratic Republic of the Congo persists, there is a risk it could spread to another country. Since it was first declared in August 2018, more than 2,000 people have died,

including a young girl in Uganda. But fears of this fatal illness reach beyond the African continent: Japan, which is expecting an influx of <u>600,000 overseas visitors</u> for the Olympic Games next summer, has a plan to deal with a potential outbreak.



The Japanese National Institute of Infectious Diseases (NIID) in Tokyo has begun tests on live viruses of Ebola and four other



types of haemorrhagic fever – Marburg, Lassa, Crimean-Congo and South American – in an attempt to make diagnoses more accurate and improve detection methods. It is the first time these five pathogens have been deliberately brought into the island nation.

To obtain the most dangerous pathogens currently known to humans, the country had to upgrade its laboratory to the highest biosafety level (BSL-4) – which requires 24/7 high-security buildings with negative air pressure to ensure air can enter but not leave as well as bulky, astronautlike protective suits with their own air supply, chemical showers, and heavy duty air filters. The NIID lab in the western suburbs of Tokyo was built in 1981 to handle hazardous viruses but wasn't allowed to house infectious BSL-4 pathogens until 2015 because local residents feared a potential outbreak if containment protocols failed. But why did Japan wait until less than a year before the 2020 Olympics to start work on some of the world's most infectious diseases?

When it comes to the ability to study infectious pathogens, Japan has lagged behind other nations. The US, Europe, Russia and Australia have around 50 maximum-security labs in operation or under construction between them, while China is building its own network of at least five facilities.

Elke Mühlberger, a microbiologist working at Boston University's <u>National</u> <u>Emerging Infectious Diseases Laboratories (NEIDL)</u>, is surprised it took Japan so long to build up the same capacity. "Japan is a big player in terms of research and science," she says. Researchers at NEIDL started working with their first level-4 pathogen, the Ebola virus, in 2018 after more than a decade of risk assessments, public hearings and lawsuits spearheaded by

local residents arguing the lab should have been constructed in less populated areas.

Preparing for disease outbreaks ahead of mass gatherings like the Olympic Games seems sensible, but virology and pathogen research is often a long-term mission. While a major outbreak of Ebola at the Olympics is unlikely because the infection is not transmitted through the air, but direct contact with bodily fluids of infected people, Mühlberger says such viruses are generally becoming more prevalent and there is much more research needed to seriously tackle them. "Japan should be involved in this game to find countermeasures and vaccines against these viruses. It's actually a shame that they were not able to do this research with the viruses before," she says.

Richard Ebright, a microbiologist and biodefense critic at Rutgers University, New Jersey is not convinced Japan is only acting in a public health interest. "There is an international arms race in BSL-4 capacity," he says, adding that no pathogens that cause death or disease in Japan currently require maximum containment.

"The US started the process by massively expanding BSL-4 capacity over the last fifteen years as a knee-jerk reaction to 9/11 and the 2001 anthrax mailings," says Ebright. One week after the September 11 terrorist attacks, a US government biodefense researcher started posting <u>anonymous letters</u> laced with deadly anthrax spores to journalists and politicians, killing five people – including two postal office workers – and infecting another 17. The US biological weapons programme began in 1943 and was replaced by a defense program in the late 60s – shortly after the 2001 attacks, the government launched the <u>BioWatch programme</u> to detect bioterror attacks early.

The presumption that a facility for the development of defenses against deadly biological agents could also be used to develop bioweapons could be what made other nations join in on the race. China opened its first lab in Wuhan last year – Japan's upgraded lab could therefore be a response to the perceived regional threat from the Chinese expansion in that field. The NIID has not responded to our request for comment at the time of writing but director Masayuki Saijo told <u>Nature</u> that the new lab is operated solely for public-health research.

BSL-4 labs operate at maximum security levels but they are not without risks. Accidental exposure to viral accidents are not uncommon and deliberate release by disgruntled employees working in such facilities – as was the case in the 2001 anthrax attacks – could



pose another risk, according to Ebright. In September, a <u>gas explosion</u> sparked a fire at a Russian lab stockpiling viruses ranging from Ebola to smallpox.

Boston's NEIDL team has a rigorous protocol in place. The worst-case scenario would be, as Elke Mühlberger explains, human error: For example, a staff member that accidentally pricked themselves with a needle during an experiment may not report the incident because they might not have realised or might be embarrassed to admit the error. "If people in my lab do not show up to work for two days, I have to report that to our occupational health people and then they follow up with this person," she says, adding that the volume of viral agents the lab deals with is extremely low and wouldn't survive the heat in case of a fire.

Ebright agrees there is a need for continued research on Ebola virus, but stresses that detection and diagnostic systems already exist outside Japan. "The lead time is too short for development of new detection and diagnostic modalities," he says. Whatever the reasons for the country's capacity building, Mühlberger says developing and testing countermeasures and vaccines will be the ultimate goal in the fight against viral diseases. "There are companies that have developed antiviral measures or vaccines. At one point, you have to test that in an animal model. There's no way around it right for vaccines," she says, clarifying that the current BSL-4 labs don't have enough capacity to take on all the testing.

In Asia she also points to the risk of emerging pathogens that are not known to pose a risk to humans but appear to be closely related to the dangerous pathogens that are currently handled in high-containment labs. "We learn more and more that the viral kingdom is pretty large. And we only know about a very tiny fragment of all these viruses," says Mühlberger. Having a BSL-4 lab in operation would allow scientists to experiment with new viruses without the risk of infection outside the four walls. In the last two years, researchers discovered a number of viruses in animals that are related to Ebola and influenza, including in <u>Chinese bats</u> and <u>fish</u> from the East China Sea. "That's pretty close to Japan," she says.



EDITOR'S COMMENT: "While a major outbreak of Ebola at the Olympics is unlikely because the infection is not transmitted through the air, but direct contact with bodily fluids of infected people" – is it so? Ebola virus survives into the sperm for 565 days² after recovery and we all know that together with Olympic Games there is a covert Sex Olympiad. Can you make the connection?

New 'prime' genome editor could surpass CRISPR

By Jon Cohen (Staff writer)

Source: https://www.sciencemag.org/news/2019/10/new-prime-genome-editor-could-surpass-crispr

Oct 21 – CRISPR, an extraordinarily powerful genome-editing tool invented in 2012, can still be clumsy. It sometimes changes genes it shouldn't, and it edits by hacking through both strands of DNA's double helix, leaving the cell to clean up the mess—shortcomings that limit its use in basic research and agriculture and pose safety risks in medicine. But a new entrant in the race to refine CRISPR promises to steer around some of its biggest faults. "It's a huge step in the right direction," chemist George Church, a CRISPR pioneer at Harvard University, says about the work, which appears online today in *Nature*.

This newfangled CRISPR, dubbed "prime editing," could make it possible to insert or delete specific sequences at genome targets with less collateral damage. "Prime editors offer more targeting flexibility and greater editing precision," says David Liu, a chemist at the Broad Institute in Cambridge, Massachusetts, whose lab led the new study and earlier invented a popular CRISPR refinement called base editing.

Liu, his postdoc Andrew Anzalone, and co-workers tested variations of their prime editors on several human and mouse cells, performing more than 175 different edits. As a proof of principle, they created and then corrected the mutations that cause sickle cell anemia and Tay-Sachs disease, DNA aberrations that previous genome-editing systems either could not fix or only did so inefficiently. The edits occurred in a high percentage of cells and caused relatively few off-target changes. In its paper, the team claims the technology "in principle can correct about 89% of known pathogenic human genetic variants."

² https://www.scientificamerican.com/article/ebola-virus-can-last-in-semen-for-565-days/



Most CRISPR systems rely on a molecular complex that couples a guide RNA—which homes in on a specific location in the genome—with an enzyme, Cas9, that cuts both strands of DNA. During the cell's efforts to reconnect the DNA, its repair machinery can introduce or delete nucleotides. Researchers can take advantage of the botched repair to knock out genes that, say, cause a disease. They can also hijack the inefficient repair process to add DNA—even an entire gene.



A new way to modify DNA, "prime editor" couples two enzymes, Cas9 (**blue**) and reverse transcriptase (**red**), to a guide RNA (green) that takes the complex to a specific place on DNA's double helix (yellow and purple) and also holds the code for an insertion of new DNA at that spot. (Peyton Randolph)

But double-stranded breaks are "genome vandalism," Church says. As the cell attempts to repair the break it introduces insertions and deletions willy-nilly, sometimes creating unwanted—and even dangerous—mutations.

Liu's earlier handwork, base editing, does not cut the double-stranded DNA but instead uses the CRISPR targeting apparatus to shuttle an additional enzyme to a desired sequence, where it converts a single nucleotide into another. Many genetic traits and diseases are caused by a single nucleotide change, so base editing offers a powerful alternative for biotechnology and medicine. But the method has limitations, and it, too, often introduces off-target mutations.

Prime editing steers around shortcomings of both techniques by heavily modifying the Cas9 protein and the guide RNA. The altered Cas9 only "nicks" a single strand of the double helix, instead of cutting both. The new guide, called a pegRNA, contains an RNA template for a new DNA sequence, to be added to the genome at the target location. That requires a second protein, attached to Cas9: a reverse transcriptase enzyme, which can make a new DNA strand from the RNA template and insert it at the nicked site.

Liu, who has already formed a company around the new technology, Prime Medicine, stresses that to gain a place in the editing toolkit, it will have to prove robust and useful in many labs. Delivering the large construct of RNA and enzymes into living cells will also be difficult, and no one has yet shown it can work in an animal model.

Fyodor Urnov, scientific director at the Innovative Genomics Institute in Berkeley, California, reviewed the paper for *Nature* and says it brought "one of those 'yay, science!' kind of moments." Prime editing "well may become the way that disease-causing mutations are repaired," he says. But, he adds, it's too soon to be sure. The technique "just showed up this year."



After Touching 6 Doorknobs These Are Germs That Could be on Your Hands!



What Can We Glean from a Bean: Ricin's Appeal to Domestic Terrorists?

By Stevie Kiesel

Source: http://www.homelandsecuritynewswire.com/dr20191022-what-can-we-glean-from-a-bean-ricin-s-appeal-to-domestic-terrorists

Oct 22 – In June 2019, FBI leadership <u>testified</u> to the House Oversight and Reform Committee that "individuals adhering to racially motivated violent extremism ideology have been responsible for the most lethal incidents among domestic terrorists in recent years, and the FBI assesses the threat of violence and lethality posed by racially motivated violent extremists will continue." In September 2019, the Department of Homeland Security <u>published</u> a Strategic Framework for Combating Terrorism and Targeted Violence, which acknowledges that "white supremacist violent extremism...is



one of the most potent forces driving domestic terrorism" and "another significant motivating force behind domestic terrorism has been antigovernment/anti-authority violent extremism." A few weeks later, William Braniff, director of

START at the University of Maryland, <u>testified</u> to the Senate Homeland Security and Governmental Affairs Committee that "among domestic terrorists, violent far-right terrorists...are responsible for more...pursuits of chemical or biological weapons...than international terrorists."

Just as policymakers have been slow to acknowledge and act upon the threat of domestic CBRN terrorism, timely extant research on the issue is scarce as well. In this article, I focus on ricin as an agent of domestic terror. As government agencies acknowledge the threat domestic terrorism poses, policymakers and law enforcement should take ricin seriously as a potential weapon.

To understand the plausibility of ricin's use as a weapon, I reviewed a number of journal articles, news articles, and court records from 1978 through 2019 and compiled data on 46 incidents of ricin acquisition and/or use. Of these 46 incidents, 19 could be credibly tied to terrorism, 19 were not related to terrorism, and 8 were unclear. The most common motivation



after terrorism was murder (10 instances). Of the 19 terrorist incidents, 58 percent were committed by extreme right-wing terrorists, a term that here encompasses the following ideologies: neo-Nazi/neo-fascist, white nationalist/ supremacist/separatist, religious nationalist, anti-abortion, anti-taxation, anti-government, and sovereign citizen. The remaining incidents were committed by Islamist terrorists (16 percent), Chechen nationalists (10 percent), or their exact ideology was unclear (16 percent).

Compared to many other biological agents, ricin is easy to weaponize—no laboratory required. Ricin is a toxin that occurs naturally in castor beans, which are used worldwide to make castor oil. If someone chewed and swallowed these beans, the toxin would be released into their system. While their bitter taste and tough texture make this an unlikely scenario for terrorism, one woman did attempt <u>suicide</u> this way. She experienced digestive symptoms but recovered.

Ricin can be <u>isolated</u> by adding a solvent to cooked then mashed castor beans, using common household materials. While some technical skill is required to create

> highly purified ricin, even an amateur's home-cultivated ricin can be deadly. Potential exposure routes include skin/eye, ingestion, injection, and inhalation. While absorption through the skin is unlikely, contact with the mucous membranes would cause severe irritation. In 1995, a <u>neurologist</u> with a grudge planned to soak pages of a book with a ricin-solvent mixture, under the assumption that

the solvent would promote the absorption of ricin through the skin. However, he was apprehended before the efficacy of this theory could be tested.

A much simpler plot would be to dissolve ricin in liquid, as it is odorless and tasteless when properly cultivated. Such an attack was thwarted in 1983: a 19-year-old <u>planned</u> to murder his father by dissolving ricin into his water, but a friend who was helping him acquire to ricin backed out and informed the police.

A majority of successfully executed ricin plots involve injection. While there is a great deal of secrecy and a fair amount of quibbling over the exact number surrounding these plots, we know that on at <u>least three occasions</u>, intelligence agents were injected with a ricin-filled

pellet, presumably by a foreign intelligence service. Finally, as with any good



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bioterrorism agent, inhaling the toxin will provoke a severe and often fatal reaction. There is no ricin antidote, so supportive treatment is the only option.

Many <u>have argued</u> that while ricin is not an effective weapon of mass destruction, it can be a highly effective weapon of terror. Based on my analysis, I agree with this assessment ricin has a history of being sought after not only by terrorists but also by those looking to inflict a psychologically damaging harm on their victims and/or witnesses. Ricin is attractive because (1) of its poisonous profile as a "<u>dreaded risk</u>," (2) it is relatively easy to acquire, (3) it can be delivered in an aerosolized form or dissolved into liquid to avoid detection, and (4) there is no antidote. Therefore, it should not be discounted as a domestic terrorism threat. But what should be done to mitigate this risk?

Although the Department of Health and Human Services classifies ricin as a select agent/toxin, ricin can be easily cultivated from castor beans without detection. A possible

avenue for interdiction is perpetrators who try to buy ricin-in 2 instances I examined, plots were thwarted because the perpetrators used the dark web to buy ricin from an undercover FBI agent. Monitoring illicit markets for suspicious purchases and sustaining robust countering violent extremism programs are essential parts of prevention. But this will not be enough—in 11 percent of instances in my dataset, the attack was only discovered when the ricin was delivered to the target (this includes cases where ricin was delivered through the mail, but excludes the 5 cases where it was intercepted by a facility that handles mail for federal agencies). Preparedness and resilience therefore must be improved. First responders and healthcare professionals must be trained and equipped to respond to and protect themselves from a ricin attack. And as the body count from domestic terrorism continues to climb, researchers should consider under what circumstances they may find value in deploying a weapon of mass destruction.

Stevie Kiesel is a part-time Ph.D. student in the GMU Biodefense program, and a full-time transportation security analyst. Her area of study is extreme right-wing terrorism and WMD.

None of these 195 countries — the U.S. included — is fully prepared for a pandemic, report says

By Lena H. Sun

Source: https://www.washingtonpost.com/health

Oct 24 – After an <u>Ebola epidemic</u> devastated West Africa in 2014, many countries took steps to boost their preparedness. But even as the risk of such outbreaks increases, no country — the United States included — is fully prepared to respond to a deliberate or accidental threat with the potential to wipe out humanity, according to a <u>report</u> assessing the efforts of 195 countries.

The report, released Thursday, is the first comprehensive assessment of global health capabilities, giving countries an <u>overall score</u> based on several measures. Unlike other ratings, the Global Health Security Index benchmarks health security in the context of tools critical to fighting outbreaks, such as robust health systems, adherence to global norms, and political and security risks, including public confidence in government.

The <u>United States</u> does well in five of six preparedness categories but ranks 19th — after Australia, Canada, Singapore and more than a half-dozen European countries — in an assessment of overall risk and vulnerability to biological threats. The factors driving down the U.S. score include the risks of social unrest and terrorism, and low <u>public confidence in government</u>. Liechtenstein ranked No. 1 on this measure.

Some other high-income countries also generally score well. But the report found that a number of middle- and low-income countries scored higher than some wealthy countries. <u>Thailand</u>, for example, is the only non-high-income country to rank in the top tier overall — sixth highest overall after the United States, United Kingdom, the Netherlands, Australia and Canada.

And some very affluent countries, such as <u>Saudi Arabia</u> and the United Arab Emirates, where experts expected to find better preparedness funding, score below 50 out of a possible score of 100. The average score among all 195 countries is 40.2

The index is a project of the <u>Nuclear Threat Initiative</u>, a D.C.-based nonprofit organization, and the <u>Johns Hopkins Center for Health</u> <u>Security</u>. It was developed with guidance from an international panel of experts from 13 countries, with research by the Economist Intelligence Unit. More than 100 researchers spent a year collecting and validating publicly available data.

Organizers hope the rankings will galvanize action amid an ongoing <u>Ebola outbreak in Congo</u> that has killed more than 2,000 people.

"Health security is a collective responsibility," said Beth Cameron, vice president for global biological policy and programs at the Nuclear Threat Initiative and one of the index's leaders.



"Countries need to know how prepared they are. And they need to know how prepared their neighbors are. Otherwise we'll never improve."



Over the past two decades, decision-makers have focused only sporadically on health security despite concerns after the 2001 anthrax attacks, the emergence of viruses that caused severe acute respiratory syndrome, or <u>SARS</u>, and Middle East respiratory syndrome, or <u>MERS</u>, and the looming threat of a pandemic caused by a novel strain of influenza, the report said. Since the 2014-2016 Ebola epidemic killed more than 11,000 people, many countries — especially in Africa — have been more willing to report their level of preparedness, said Cameron, formerly senior director for global health security and biodefense at the National Security Council in the Obama administration.

"But in terms of financing to fill the gaps, not enough has been done," she said.

There needs to be a fundamental shift in understanding that biological catastrophes are a major peace and security risk, Cameron said. While health experts have long recognized those risks, finance ministers, heads of states and other decisionmakers have not.

Biological threats are catastrophic, yet responsibility for them is "buried in the bowels of health ministries around the world," Cameron said.

Source: Global Health Security Index LENA SUN/THE WASHINGTON POST National Security Council. That unit was abolished last year under a reorganization by then-national security adviser John Bolton.



In the United States, military readiness is staffed at the level of the chairman of the Joint Chiefs of Staff. Biodefense is currently staffed at the level of assistant secretary at the Health and Human Services Department.



"When heads of states get together, among their five talking points, this isn't always one of them," Cameron said.

A new assessment of 195 countries finds no country is fully prepared for epidemics or pandemics. The index is a joint project of the Nuclear Threat Initiative and the Johns Hopkins Center for Health Security and was developed with the Economist Intelligence Unit. (A new assessment of 195 countries finds no country is fully prepared for epidemics or pandemics. The index is a joint project of the Nuclear Threat Initiative and the Johns Hopkins Center for Health Security and was developed with the Economist Intelligence Unit. (A new assessment of 195 countries finds no country is fully prepared for epidemics or pandemics. The index is a joint project of the Nuclear Threat Initiative and the Johns Hopkins Center for Health Security and was developed with the Economist Intelligence Unit. Global Health Security Index)

Among the report's recommendations: The United Nations secretary general should designate a permanent unit for highconsequence biological threats and call a heads-of-state level summit by 2021 on biological threats that includes a focus on financing and emergency response. Responding to biological threats should also be a priority for the next U.S. president, organizers said.

Tom Frieden, who was director of the U.S. Centers for Disease Control and Prevention during the 2014 Ebola epidemic, said the report underscores the lack of significant action since then to close preparedness gaps. It also provides information on aspects of health security that haven't been previously assessed.

The report also highlights an issue that is too often neglected: protecting front-line health workers, said Frieden, who heads Resolve to Save Lives, a New York-based public health nonprofit. His organization has also developed a tool that <u>spotlights gaps in preparedness</u>, and actions that countries and organizations can take to close them.

<u>Dozens of health workers</u> have been attacked or killed in Congo's Ebola outbreak that began in August 2018, the second-deadliest in history, according to World Health Organization officials.

Among the report's other findings:

- Only 15 percent of countries score in the highest tier for public confidence in government.
- Only 3 percent show a commitment to prioritizing services for health-care workers who become sick as a result of
 participating in a public health response.
- 89 percent of countries do not demonstrate that they have a system for dispensing medical countermeasures during health emergencies.
- 92 percent of countries do not show evidence of requiring security checks for personnel with access to dangerous biological materials or toxins.

Lena H. Sun is a national reporter for The Washington Post covering health, with a special focus on public health and infectious disease. A longtime reporter at The Post, she has covered a variety of beats, including the Metro transit system, immigration and education. She has also served as The Post's Beijing bureau chief. In addition, she is a Pulitzer Prize for National Reporting awardee for coverage of the war on terrorism, part of national reporting team, 2002 Robert F. Kennedy journalism award, international print, 1994.

Deadly bacteria found on healthcare workers' cellphones

Source: https://gulfnews.com/uae/health/deadly-bacteria-found-on-healthcare-workers-cellphones-1.67448142



Oct 28 – Cellphones of health professionals could be reservoir of deadly pathogens, according to the findings of a study presented in Dubai on Monday.

This startling revelation was made by a leading researcher in the field of molecular genetics during the Fourth UAE Biosecurity Conference hosted by the Ministry of Climate Change and Environment (MOCCAE) on Monday.

Dr Lottti Tajouri, associate professor at the Faculty of Science Medicine at Bond University, Queensland, Australia and member of Dubai Police Scientists Council said they collected samples from 16 mobile phones of healthcare workers in Australia as part of a study aimed at investigating microbial contamination in a hospital setting.

"The findings were shocking to say the least. Within a small size of just 16 phones, we found 814 bacteria including superbugs, 203 viruses, 67 fungi and eight protists. These pathogens can cause Healthcare Associated Infections (HAIs) ranging from minor complaints to life-threatening illness. If this were not bad enough, we also 1,092 microbes on the surface of the cellphones. Of them, 320 were antibiotic resistant and 598 virulent factor genes," he said.



"Health care professionals wash their hands and wear gloves but like most of us they are snuck on their cellphones. Their contaminated handsets are perfect vehicles for transmitting pathogens to patients," said Dr Tajouri.



Describing cellphones as 10 times dirtier than toilet seats, Dr Tajouri said Dubai should come up with a plan to counter the threat posed by contaminated cellphones of visitors.

"We are talking about billions of microbes and antibiotic resistant genes coming to the city almost unnoticed due to the absence of biosecurity measures. Are we not afraid? Yesterday we were concerned. Today we are worried. Tomorrow we will be too late," he said.

Held under the theme Towards Sustainable Biosecurity', the two-day conference aims to highlight global best practices and address key challenges and requirements related to implementing an integrated biosecurity system.

Several biosecurity experts from the US, Canada, the Netherlands, UK, Sweden, Sudan, Japan, and Australia, in addition to local specialists and stakeholders from the government and academia are attending the event at Dubai's Grand Hyatt hotel.

Dr Farida Al Hasani, manager communicable diseases at the Department of Health Abu Dhabi, shared her findings on the strategies for dealing with infectious and emerging diseases. "Emerging infections is an increasing global risk and the UAE is no exception," she said describing the new infections faced by the country in the past five-years. She said the current strategy is focused on traditional diseases and UAE needs to prepare itself by enhancing surveillance for infectious diseases and encouraging innovative solutions for their control.

The conference also features an exhibition of cutting-edge biotechnologies from the public and private sectors, as well as a discussion entitled, "Biosecurity Laboratory: Smart Ports for Better Biosecurity", with a focus on ways to counter biohazards at the country's entry points.

Saif AI Shara, Assistant Under-Secretary for the Sustainable Communities Sector at the MoCCAE said they were proud to host the event which he hoped would facilitate capacity-building in the vital field. "We look forward to sharing best practices in the detection and control of biological agents and devising swift preparedness and response plans that minimise human and property losses during biohazard incidents," he said.

The Military Is Developing a Vaccine to Stop a Bioterrorism Agent

Source: https://www.military.com/daily-news/2019/11/05/military-developing-vaccine-stop-bioterrorism-agent.html

Nov 05 – The government is funding a project to keep bioterrorists from spreading a pneumonia-like, often antibiotic-resistant disease to soldiers.

The vaccine has passed a one-month study with mice that found it prevented those treated from contracting melioidosis, a disease caused by contact with a bacteria typically found in Puerto Rico, Southeast Asia and northern Australia, the Defense Threat Reduction Agency's Chemical and Biological Technologies Department (DTRA CB) announced in a news release last week.

"For now, the DTRA CB-funded LAV [live-attenuated vaccine] shows promise of preventing melioidosis, a disease bearing an uncertain global prevalence rate and challenges in diagnosis and treatment," the agency said in the release. "A vaccine will safeguard U.S. warfighters from the disease so that they can serve the nation as needed."

Burkholderia pseudomallei, a bacterium that thrives in tropical soil and water, causes melioidosis in humans and animals who eat food, drink water or breathe dust contaminated with it.

Past efforts to create an LAV were unsuccessful because the weakened pathogen introduced into the body either did not trigger an immune response or it did not live long enough for a mouse to build antibodies against it.

So, the team deleted the gene that lets the bacteria survive outside a cell and the gene that suppresses the immune system. Then, they vaccinated 10 mice with three aerosol doses, and 21 days later exposed both the control and them to the bacteria. All the vaccinated mice lived.

Treatment has proven difficult as there are more than 1,000 strains and each one has multiple antibiotic-resistant genes. Meanwhile, the patient undergoes antimicrobial treatment, both intravenously to keep from dying of sepsis, and orally to kill the bacteria for up to six months.



The <u>Centers for Disease Control</u> said the disease, also called Whitmore's Disease, kills up to nine out of every 10 people who have no treatment. Even with the right antibiotics, there's a 40% mortality rate, according to the CDC. It classifies melioidosis as a "<u>category</u> <u>B bioterrorism agent</u>," which makes it a second-highest priority agent, along with food safety threats like salmonella. High-priority agents are threats like anthrax.

The next step of the joint project with the University of Texas Medical Branch will be to test the vaccine's effectiveness in mice against regional bacteria strains, in addition to a closely related strain. It will not be tested on humans until it's been studied in primates, the DTRA CB release said.

Salad bars and water systems are easy targets for bioterrorists – and America's monitoring system is woefully inadequate

By Ana Santos Rutschman (Assistant Professor of Law, Saint Louis University)

Source: http://theconversation.com/salad-bars-and-water-systems-are-easy-targets-for-bioterrorists-and-americas-monitoring-system-is-woefully-inadequate-126079

Nov 07 – In October 2019, a House Homeland Security Committee subcommittee held a <u>hearing</u> entitled "Defending the Homeland from Bioterrorism: Are We Prepared?" The answer was a resounding no.

The experts testified that our biodefense system has been vulnerable and outdated for <u>well over a decade</u>. This might provoke worries about weaponizing disease-causing microorganisms, or pathogens, like Ebola or anthrax. But you should probably also take a moment to consider your lunch: The next threat might come not from a hard-to-come-by virus but from something as simple as food that has been deliberately contaminated.

I teach food and drug law at Saint Louis University's <u>Center for Health Law Studies</u>. While monitoring pathogens likely to pose severe threats to public health, my colleagues and I spend a lot of time studying viruses and bacteria that are very hard to obtain, like <u>anthrax</u> or the <u>plague</u>. One less-known facet of bioterrorism, however, is that simpler pathogens like salmonella, a bacterium found in many types of food, can also be used to deliberately harm people. In fact, the largest bioterrorism attack in American history <u>started at the salad bars</u> of a handful of restaurants in the Pacific Northwest.

A primer on bioterrorism

The Department of Homeland Security defines bioterrorism as the <u>deliberate release</u> of bacteria, viruses and toxins with the purpose of causing injury or other harm to people. Pathogens can be spread in multiple ways. Some travel through air or water. Others pass directly from person to person or through contact with infected animals. Last, but not least, food systems can be used to spread biological agents.

The Centers for Disease Control and Prevention in Atlanta classify bioterrorism agents into <u>three categories</u>. The classification is based on factors like ease of disease transmission and morbidity and mortality rates. Category A includes high-priority agents that can spread easily, result in high mortality rates and pose a risk to national security. Examples include <u>smallpox</u> and <u>anthrax</u>. Category B includes pathogens that are moderately easy to disseminate but don't kill as many people as the microbes in Category A. These include <u>cholera</u> and pathogens causing <u>viral encephalitis</u>. Category C includes existing pathogens that could one day be engineered for purposes of bioterrorism, such as <u>hantavirus</u> or <u>Nipah virus</u>.

Pathogens - the usual suspects

Although bioterrorism may sound like a new phenomenon, it is not. One of the earliest cases dates back to 1346, when the Tartar army infected the besieged city of Caffa, in modern-day Crimea, with the <u>plague</u>. This event has been ultimately <u>linked to the Black</u> <u>Death</u> that decimated Europe in the following years. Some historians believe that, in the mid-eighteenth century, colonists purposely gave Native Americans blankets <u>infected</u> with smallpox. And during World War II and the Cold War, several countries, including the United States, experimented with <u>weaponizing pathogens</u> including anthrax, smallpox, plague and <u>botulism</u>.

The most recent case of bioterrorism in America took place in the aftermath of 9/11. <u>Anthrax spores were mailed</u> to politicians and media organizations, <u>killing</u> five people and injuring another 17.

Agents like anthrax or smallpox remain among the most feared in connection with bioterrorism attacks. Even though it is extremely hard for most people and institutions to acquire samples of these pathogens, they can pose devastating public health risks if <u>mishandled</u> or if they fall in the wrong hands.



The list of bioterrorism agents, however, is broader than one might think. It contains bacteria that routinely contaminate our food supply, like <u>salmonella</u>. And it was precisely salmonella that triggered the <u>largest bioterrorism attack</u> on American soil.

Unusual pathogens

Between September and October 1984, followers of <u>Bhagwan Shree Rajneesh</u>, the leader of an Oregon-based <u>sect</u>, intentionally contaminated food in salad bars in several restaurants in The Dalles, in Wasco County, Oregon. Members of the sect stole salmonella from a lab in Seattle, mixed it into a brown liquid and discreetly dropped small quantities on items like <u>salsa</u> and <u>salad dressing</u>. Though no one died, 751 people were <u>infected</u>, at a time when The Dalles had a population of 10,500.

It took <u>a full year</u> for the authorities to understand the cause of the outbreak, which initially was attributed to poor hygiene.

Even outside the context of bioterrorism, salmonella poses substantial threats to public health. <u>On average</u>, it causes 1.2 million illnesses each year in the U.S., 23,000 hospitalizations and 450 deaths. If it were weaponized, the results could be catastrophic. Currently, the CDC

450 deaths. If it were weaponized, the results could be catastrophic. Currently, the CDC classifies salmonella and other food safety threats like <u>*E. coli*</u> as Category B agents. This category also includes pathogens that may be used to contaminate our water supply.

Infecting water and food supplies is not a new tactic. In the twelfth century, Emperor Frederick Barbarossa <u>poisoned water wells</u> during the siege of Tortona, in Italy. Six hundred years later, Napoleon's troops <u>flooded</u> the plains around Mantua to exacerbate an ongoing malaria outbreak.

Water and food supply systems have greatly changed since these historic examples. Imagine what could happen if the next act of



bioterror targeted the salad bars of restaurants in Times Square. Or if part of the water supply of Los Angeles was tampered with. We cannot afford to overlook bioterrorism preparedness – but according to the <u>experts who recently</u> testified in Congress, that is precisely what is happening.

This mobile lab is a roving tool, part of the airborne pathogen early warning system known as BioWatch now deployed in about 30 cities across the country. (AP Photo/Ben Margot)

Bioterrorism preparedness

Since 2003, the United States has relied on <u>BioWatch</u>, a monitoring and early warning program for major urban areas. The program, considered <u>outdated</u> for more than a decade, is now being phased out. Its replacement,

BioDetection21, was announced in early 2019, but the new sensor technology it uses to detect pathogens was deemed inadequate at an October congressional hearing.

The detectors are <u>not reliable</u>, routinely producing false positives and often taking too long to identify biological threats. A <u>possible</u> <u>solution</u> put forward by <u>biodefense experts</u> at the congressional hearing would be to form partnerships between the public and private sectors to develop better pathogen detection technology.

When it comes to responding to threats, there is a profound lack of coordination between federal agencies and local communities. When asked about what happens after notifications of a possible bioterrorism attack, Dr. Asha George, executive director of the Bipartisan Commission on Biodefense, answered: "They go off but nobody knows what to do."

This happens at a time when other countries are becoming savvier about preparedness. Japan is now <u>collecting and studying viruses</u> before the 2020 Olympics. <u>China</u> and other Asian countries have also invested more in bioterrorism preparedness, developing monitoring programs for heavily trafficked areas like <u>airports and subway lines</u>. The United States

should not be the exception in a world in which infectious diseases travel faster than ever before.

Addressing the concerns voiced by our biodefense experts would be an important first step in increasing bioterrorism preparedness in the United States. This entails figuring out how to


fund better detection technologies and how to create response plans that engage state and local institutional players. But there are additional steps that can be taken.

For instance, public health scholars have called attention to the need to develop <u>new vaccines and antimicrobial therapies</u> that can be used for natural epidemics and for bioterrorism alike. Already, the Biomedical Advanced Research and Development Authority <u>BARDA</u>, an office within the Department of Health and Human Services, is funding some projects in this area. As emerged from the congressional hearing, increasing our bioterrorism preparedness is not a task that can be accomplished by a single office or agency.

The threat of agroterrorism

Source: https://www.deccanchronicle.com/nation/current-affairs/111119/the-threat-of-agroterrorism.html

Nov 11 – Describing real-life scenes from Bengal famine, Brigg's, a British United Press New Delhi correspondent in a newspaper in September 1942 wrote: "At least 150 people are dying daily in Calcutta from starvation and the accompanying



diseases of cholera and dysentery, "In a sunrise walk, I found people dead on the pavement by the dozens. Thousands more may die before they gather the harvest in. I saw children with bloated, empty stomachs, mothers whose breasts had collapsed, men wailing the one word that means the unattainable - rice. I saw scenes of slow death."

Crop diseases have been deemed to rival an Agro-terrorism event or military action and the example of Bengal brown spot disease of rice in India, in 1942-1943, serves as an illustration of how similar and devastating an Agro terror event could be if it were to be unleashed.

Agro-terrorism is a deliberate introduction of an animal or plant disease with an aim to generate fear, cause economic losses, and/or undermine social stability. Terrorists know of the ease of creating serious economic insecurity through intentional introduction of these diseases.

Agro-terrorism is an issue that compels considerable attention than it is being allotted at present. A low-cost agro terror

attack could be an extremely devastating way of destroying our economy. Agro terrorism is an aspect of bioterrorism whose goal is agricultural sabotage.

Compared to bioterror, agroterror is appallingly easy. Access to these hazardous pathogens is straightforward, as we can get them from infected animals in many parts of the world, and agent dissemination is simple and could take place in a variety of venues.

Terrorists have a vast choice of the bioagents, bulk of which are environmentally sturdy and which can easily be smuggled into any country with no vaccination programs being focussed on them. The food chain offers an excellent route for inflicting human casualties. Most animal and plant pathogens are non infectious to humans, which makes it easier for terrorists to handle and work with. Livestock is the primary vector for pathogenic

transmission; there being no weaponisation impediment to overcome.

Terrorists or even lone wolves could, in theory, acquire and use this kind of agent more easily than other biological agents that are pathogenic to humans. A group or an individual may not need laboratories to acquire these agents. Many of these are non-pathogenic to human beings. We do not have a strategy in case of an act of agroterrorism because we do not seem to expect one despite facing a significant threat we are still to take suitable action.

Agriculture, with its allied sectors, is the biggest source of employment in India -



70 percent of its rural homes still depend chiefly on agriculture for their livelihood, with 82 percent of farmers being small and marginal. In 2017-18, total food grain production was assessed at 275 million tonnes. India is the largest producer (25% of global production), the consumer (27% of world consumption) and importer (14%) of pulses in the world. An assault on our food supply, for example, would lead not only to direct fallouts on human and animal health but also inflict a startling long-term psychological and economic effect on the nation's farming community.

India has 6 to 7 million tons of food supplies, but these would be wiped out by two or three consecutive crop losses in different parts of the country, tilting the equilibrium from selfsufficiency to inadequacy. An attack during a lean period could exacerbate the problem beyond repair.

An important plant pathogen Cochliobolus miyabeanus was a significant cause of Bengal famine of 1943, where the crop yield declined by 40% to 90%, and it documented the death of 2 million people. It is a tool for agroterrorism. This pathogen causes rice seedling mortality rate up to 60% in the Philippines and India and Nigeria; it can reduce total crop yield by up to 40%. The USA used this as a bio-weapon when attacking Japan during the World War II.

Potato blight gave rise to a terrible famine in Ireland in 1845. The corn leaf blight of 1970 cost the United States an estimated \$1 billion. An attack of avian influenza of foreign origin cost Pennsylvania \$86 million. In contrast, some 639 acts of terror by the Earth Liberation Front and the Animal Liberation Front since 1996 caused "only" \$40 million in property damage according to Federal Bureau of Investigation estimates.

Mycotoxins are toxic metabolites secreted by certain fungi naturally which contaminate many crop plants. For instance, at least 15 different Fusarium species colonise small grain cereals including wheat, barley, oats and maize, producing important mycotoxins such as aflatoxin and T2 toxin. These are desirable agents in a bioterrorist attack, leading to loss of both harvest and quality. T2 toxin, sometimes known as "yellow rain," is believed to have been put to use during the Vietnam war.

Agroterrorism has existed throughout history. In 1952, Mau Mau poisoned cattle in Kenya by employing a plant toxin from the African milk bush plant; in 1985, the USDA contended that Mexican contract workers were involved in deliberately dispersing screwworm (Cochliomyia hominivorax) among livestock; In 2000, Palestinian media reported that Israeli settlers released sewer water into Palestinian agricultural fields; In 2011, the court sentenced a person to prison after endangering US and UK livestock with the deliberate spread of foot-and-mouth disease virus.

During the World War I, Germany attempted to attack draft horses utilising biological agents like Bacillus anthracis (anthrax) and Burkholderia mallei (glanders), and between the World Wars, both Germany and France researched agricultural pathogens such as rinderpest virus, Phytophthora infestans (causing late blight), Puccinia spp. (causing wheat rust), and numerous beetlepests. Various agroterrorism agents and diseases have been researched or weaponised in Russia (1935-1992), including African swine fever virus, avian influenza virus, B. anthracis, Brucella spp. (causing brucellosis), Burkholderia mallei, Chlamydophila psittaci (causing psittacosis), FMD virus, and the plant pathogenic viruses brown grass mosaic virus, potato virus Y, tobacco mosaic virus, Puccinia sorghi (causing maize rust), and Puccinia graminis (causing wheat stem rust).

In the US too different biological agroterrorism agents were investigated or weaponised from 1943 to 1969 such as avian influenza virus (causing fowl plague), B. anthracis, Brucella spp., B. mallei, Chlamydophila psittaci, and Phytophthora infestans and the causative agents of wheat blast, wheat stem rust, rice blast, and rice brown spot disease. In Iraq, aflatoxins and the causative agents of cover smut/bunt of wheat we're experimented or weaponised. After World War II, the research on plant pathogens and anticrop weapons progressed in several countries.

It is estimated that 75 percent of the diseases that have arisen in the last 25 years are zoonotic in their origin and around 80 percent of the top biological threat agents are zoonotic diseases. Zoonotic disease is an infectious disease that is transmitted between species from animals to humans or from humans to animals. Eleven of the last 12 outbreaks of global concern are zoonotic in inception. Some of these diseases, even if they do not make people sick, can present a challenge to the health and well-being of our human population. For example, foot and mouth disease or FMD affects only cows, swine, sheep, goats, deer and similar species. But the disease could have a very dramatic effect on our domestic and global economy. Should the disease stabilise itself in our wild species, such as feral swine, it would be almost impossible to eradicate.

Vectors, such as insects or ticks, are among the most common conduits for disease transmission from animals to humans. Diseases transmitted by vectors are especially difficult to control, as shown by the rapid spread of the West Nile virus, which has so far infected over 1.2 million Americans. Other examples of vector-borne diseases include plague, tularemia, and hemorrhagic viruses, like Rift Valley fever.

Current examples of this hazard are the epidemic of

chikungunya virus in the Indian Ocean, the leap of Rift Valley fever from Africa to Saudi Arabia, and eruptions of dengue along the U.S.-Mexican border. While it is difficult to anticipate when and where the next zoonotic event will occur, all the crucial factors are in place to guarantee that this new era of emerging zoonoses-naturally or deliberately caused-will prevail or even speed up in the times to come.

Brucellosis, a zoonotic bacterial disease that devastates livestock worldwide is classifiable as a potential bioweapon. It causes substantial illness and death in animals and humans. We have made significant progress in eliminating brucellosis from cattle and swine populations over the past 50 years and in helping to control it in some wildlife species.

The Rift Valley fever virus transmitted by mosquitoes is a biological threat agent of high priority. Introduction of this pathogen, intentionally or even accidentally, would be catastrophic to the agricultural economy. The disease has already moved out of East Africa into Egypt, Yemen, and Saudi Arabia.

Bacillus anthracis is a spore-forming bacterium found in soil and can cause a disease known as anthrax - in livestock and other animals. We could use anthrax spores as an agroterrorism agent in several ways. Without treatment, the mortality rate for pulmonary anthrax is 70-80%. Most times, pulmonary and gastrointestinal anthrax is fatal if not treated immediately.

In the preceding five years, "food defence" has received increasing interest in the counterterrorism and bioterrorism communities. Laboratory and reaction capability are being boosted to deal with the reality of agroterrorism, and national response plans now integrate agroterror. The vigilance from our farmers will be crucial. We would expect farmers to perform as both first responders and first preventers. They would be the first to recognise the emergence of zoonotic disease, the first to report an agro terrorist attack and the first to respond to it.

Agroterrorism has never been extensively used because accomplishing a political shift through terrorism requires more than the destruction of food and livestock; it requires a shocking loss of lives to provoke a modification in government policy. While agriculture may not be a terrorist's first choice because it lacks the "shock factor" of more traditional terrorist targets, many analysts consider it a reasonable secondary goal. Therefore, Agro-terror could, however, be a secondary Modus operandi to destabilise a society much more after a conventional attack. As this type of attack is dirt cheap, this form of attack gives terrorists a high cost/benefit payoff to overcome high power asymmetry. Further, in cities, population density is high. Therefore, extremists find it ideal, but farming gets spread out, making it difficult for terrorists to infect crops in vast areas. Yet another drawback of Agroterrorism is its difficulty in gaining the attention of media due to its inadequate visibility

Thus, agroterrorism is much more preferable to animal activists and other radical groups who aspire to destroy property than to al-Qaeda or other international terrorists who aim to destroy lives.

Whether a terrorist or a terrorist group uses bio-agents or bombs do, they do so because they do not have an awareness of existence present everywhere, a sense of compassion or caring for the whole of humanity. Agro terrorism or terrorism in the name of religion or ideology exists because terrorists have not understood the spiritual dimension of their lives. Once they gain this consciousness, their awareness could become uplifted, leading to extinguishment of extremist tendencies.

Bitten

The Secret History of Lyme Disease and Biological Weapons Author: Kris Newby

Source: http://www.harperwave.com/book/9780062896278/Bitten-Kris-Newby/

A riveting thriller reminiscent of *The Hot Zone*, this true story dives into the mystery surrounding one of the most controversial and misdiagnosed conditions of our time—Lyme disease—and of Willy Burgdorfer, the man who discovered the microbe behind it, revealing his secret role in developing bug-borne biological weapons, and raising terrifying questions about the genesis of the epidemic of tick-borne diseases affecting millions of Americans today.

While on vacation on Martha's Vineyard, Kris Newby was bitten by an unseen tick. That one bite changed her life forever, pulling her into the abyss of a devastating illness that took ten doctors to diagnose and years to recover: Newby had become one of the 300,000 Americans who are afflicted with Lyme disease each year.

As a science writer, she was driven to understand why this disease is so misunderstood, and its patients so mistreated. This quest led her to Willy Burgdorfer, the Lyme microbe's



discoverer, who revealed that he had developed bug-borne bioweapons during the Cold War, and believed that the Lyme epidemic was started by a military experiment gone wrong.

In a superb, meticulous work of narrative journalism, *Bitten* takes readers on a journey to investigate these claims, from biological weapons facilities to interviews with biosecurity experts and microbiologists doing cutting-edge research, all the while uncovering darker truths about Willy. It also leads her to uncomfortable questions about why Lyme can be so difficult to both diagnose and treat, and why the government is so reluctant to classify chronic Lyme as a disease.

A gripping, infectious page-turner, *Bitten* will shed a terrifying new light on an epidemic that is exacting an incalculable toll on us, upending much of what we believe we know about it.

Kris Newby is an award-winning science writer at Stanford University and the senior producer of the Lyme disease documentary, Under Our Skin, which premiered at the Tribeca Film Festival and was a 2010 Oscar semifinalist. Previously, Newby was a technology writer for Apple and other Silicon Valley companies. She lives in Palo Alto.

Highly Toxic Ribosome-Inactivating Proteins as Chemical Warfare or Terrorist Agents

By Prof. RNDr. Jiri Patocka, DrSc

International Review of the Armed Forces Medical Services; Vol 92/3 (Sept 2019); pp.39-48. Source: <u>https://fr.zone-secure.net/69872/1082054/publication/contents/pdfweb.pdf</u>

Biological weapons include infectious agents and toxins. Toxins are poisons produced by living organisms. An important group of toxins are ribosome inactivating proteins (RIPs) of plant or microbial origin that inhibit protein synthesis by inactivating ribosomes. RIPs have been of great scientific interest due to their importance in human health, as both pathogenic agents and therapeutics, but also due to their potential use in biological warfare and bioterrorism. RIPs relevant to bioterrorism include mainly ricin and abrin. Ricin is protein produced in the seeds of the castor oil plant (*Ricinus communis*). Abrin is protein that has been isolated from the seeds of Abrus precatorius. Both inactivate ribosomes, which results in toxicity because of the inhibition of protein synthesis. Abrin and ricin are substances very toxic to humans in all types of administration, with the exception of oral administration. Symptoms include nausea, diarrhea, tachycardia, hypotension, and seizures. Treatment is supportive, and no antidote exists.

Prof. RNDr. Jiri PATOCKA, DrSc. Academic title was obtained at Masaryk University in Brno, Czech Republic, Faculty of Chemistry (1962). Since 1964, a scientist at the Military Medical Academy in Hradec Králové. Currently a professor of toxicology at the University of South Bohemia in České Budějovice. He works in the field of molecular biochemistry, enzymology and toxicology of extremely toxic, synthetically prepared and natural substances. He is the author or co-author of more than 20 monographs and textbooks, including Military Toxicology (2004) or Nutrition Toxicology (2008). He has published over 400 scientific articles. It also deals systematically with the popularization of science.

Anthrax may be an unlikely ally against bladder cancer

Source: https://newatlas.com/medical/anthrax-fight-bladder-cancer/

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Nov 12 – If movies have taught us anything, it's that sometimes to fight one villain, you have to team up with another. Medical science occasionally follows the <u>same logic</u> and in the latest example, researchers have turned to anthrax as an unlikely ally in the fight against bladder cancer, with promising results in animal tests.

Bladder cancer is one of the most common forms of cancer, and while it is often caught early, it does have a high chance of recurring down the track. Currently treatment is rather invasive and uncomfortable – intravesical chemotherapy involves inserting a catheter through the urethra, filling the bladder with a drug solution, holding it there for a couple of hours, then emptying it out through the catheter again.

For the new study, researchers from **Purdue University** developed a similar method, but one that works in as little as three minutes. **Rather than conventional chemotherapy drugs**, the active ingredient is the anthrax toxin (EGF-conjugated anthrax toxin), mixed with a growth factor.





As alarming as it sounds to willingly put anthrax into your body, the bladder can handle it. The organ is used to handling toxins after all, so it has a protective layer that shields healthy cells. Tumors and cancer cells aren't so lucky though – they're exposed to the drug mixture, which triggers the cell death process within minutes.

"We have effectively come up with a promising method to kill the cancer cells without harming the normal cells in the bladder," says



R. Claudio Aguilar, corresponding author of the study. "It is basically like creating a special solution that targets cancer cells while leaving healthy cells alone."

A) A biopsy taking place in a dog bladder. B) Ultrasound image of bladder cancer. C) Fluorescent labelling of bladder cancer (Purdue University)

The team tested the technique on human bladder cancer cells (Her2-positive and negative bladder cancer) in the lab, and found that just three minutes of exposure to the drug was enough to eliminate the tumors. In tests in living mice and dogs, the

treatment worked well, too. Importantly, in groups of both animals that had no cancer at all, the drug mixture showed no toxicity to healthy cells.

The researchers also tested the method in pet dogs that had bladder cancer, and had run out of other treatment options. In those cases, the drug shrank tumors by an average of 30 percent after just one treatment cycle. No other side effects were reported.

Of course, success in animal studies doesn't guarantee success in humans, but it's a promising start.

The research was published in the International Journal of Cancer.

Typhoid: Neglect Outside Rich Countries Threatens New Global Health Emergency

Source: http://www.homelandsecuritynewswire.com/dr20191112-typhoid-neglect-outside-rich-countries-threatens-new-global-health-emergency

Nov 12 – The emergence of untreatable strains of typhoid threatens a new global health emergency that requires urgent collective action, argue experts from the Oxford Martin School in *Clinical Infectious Diseases*.

Typhoid still affects at least 11 million people every year, with the real figure potentially as high as 18 million. Oxford <u>says</u> that on the eve of the rollout of a new typhoid conjugate vaccine (TCV), the researchers are calling for global health institutions to dedicate new resources to tackling typhoid, which they say has become a neglected disease of poorer countries following its elimination in many high-income countries. Rising antimicrobial resistance and the ongoing outbreak of extensively drug-resistant (XDR) typhoid in Pakistan should be a wake-up call to the international community, they say.

New vaccines offer hope for typhoid control, but one intervention alone will be insufficient for eliminating the disease. Analyzing the past and present of typhoid control, the researchers – including historians, immunologists and social scientists – identify a range of actions key to the strategic elimination of typhoid globally.

Their findings include:

- Typhoid is still a major global health issue but is largely unrecognized, due to factors including poor surveillance and the complex dynamics of the disease, including new drug-resistant strains.
- The availability of cheap credit and sustainable financing schemes for affordable water and sanitary systems at the municipal level have an important role to play in typhoid control (as seen in the elimination of typhoid in the UK and US).
- There is a need to pair top-down nation state-led programs with a greater emphasis on bottom-up approaches, enabling municipal coalitions to develop, adapt, and own locallytailored water, sanitation, hygiene and health systems.



- A lack of international financing has stalled the spread of sanitary and health infrastructures that played a key role in eliminating typhoid in high-income countries. Instead, the focus in wealthier, typhoid-free countries has been on protecting travelers and preventing typhoid from crossing borders.
- Fragmented global action on typhoid and intensive use of antibiotics to compensate for weak water and healthcare systems have fueled antimicrobial resistance in low- and middle-income countries.
- Progress on typhoid control will depend on support for independent research and policy decisions within endemic countries to improve water quality.
- The recent advent of a new generation of typhoid conjugate vaccines, which can also be used for children under two years of age, can play an important role until clean water and sanitation are in place for those at greatest risk.

Dr. Kirchhelle, of the Wellcome Unit for History of Medicine at the University of Oxford, said: "Popular notions of typhoid as a disease of the past are a myth. For poorer countries, the specter of typhoid has never gone away. Over the last decades, international neglect, lacking sanitary infrastructures and vaccine programs, and compensatory reliance on antibiotics have resulted in a situation where typhoid is increasingly difficult to treat. The current resurgence of extensively drug-resistant (XDR) typhoid bears the biosocial footprint of more than half a century of antibiotic-intensive international neglect."

Dr. Vanderslott, of the Oxford Vaccine Group, added: "The emergence of untreatable strains needs to be taken far more seriously. Top-down interventions such as vaccination programs need to be combined with flexible credit to empower local communities, so that they can implement essential infrastructure such as waste disposal, sanitation and clean water systems."

Progress on the new typhoid vaccine was accelerated by a pioneering use of a controlled human infection model (CHIM) in Oxford - which enabled scientists to test a number of candidate vaccines.

Professor Andrew Pollard, who leads the Oxford Vaccine Group, said: "The escalating problem of antimicrobial resistance means we need urgently to deploy new interventions to tackle typhoid. The availability and funding of new effective typhoid vaccines give us a critical tool for strengthening global control of typhoid, with the potential to protect vulnerable populations from this disease."

►► The full paper, "<u>Making a Difference? The Past, Present and Future of Typhoid Control</u>," can be read in *Clinical* Infectious Diseases.

University of Illinois researchers create "lab-on-a-smartphone" system to diagnose infectious diseases

By Chris Galford

Source: https://homelandprepnews.com/stories/39669-university-of-illinois-researchers-create-lab-on-a-smartphone-system-to-diagnose-infectious-diseases/

Nov 13 – Looking for ways to diagnose and treat infectious diseases in regions with limits health care and laboratories can yield some interesting results, but researchers from the University of Illinois at Urbana-Champaign are working on the development of a



lab-on-a-smartphone to help expand the currently limited opportunities.

controls that make the

The goal of such research, they say, is to create a simple device capable of detecting disease at the point of care. For this, care providers will need three items: a microfluidic cartridge, a clipon instrument, and a smartphone with a rear-facing camera. The system operates through the cloud. With a drop of blood, researchers could then detect and report the presence of pathogens within 30 minutes. The National Institutes of Health have backed their efforts under a four-year grant.

"This device can substantially reduce the time, cost, and inconvenience of doing a standard lab test, while still incorporating all the

test valid," Brian Cunningham, principal investigator, director of the Holonyak Micro &



Nanotechnology Lab and a professor in Engineering at Illinois, said. "The information can then be shared immediately with an online health care provider who can make decisions about treatment."



The microfluidic cartridges contain pre-dried primers that recognize and amplify. The clip-on interfaces with the cartridges like reading a credit card, and uses LED illumination to set off the dyes. The camera then records the reaction as it takes place, which is uploaded to the cloud-based system to interpret the results and forward them to an offsite medical professional. To work, however, the system would depend on a tracking algorithm accurate enough to make the video data viable and robust enough to provide results with even small amounts of blood.

"We will have to model the signal and noise, due to many non-ideal conditions in the field, to come up with an optimal processing algorithm," Minh Do, co-investigator and professor of electrical and computer engineering at Illinois, said.

Eventually, the team hopes to take a working prototype of the device to Brazil for clinical testing in a real-world environment.

Chris Galford is a Michigan-based writer and a graduate of Michigan State University's School of Journalism. For years, he has reported on the Midwest, as well as business and governmental issues.

Japan Just Imported Ebola to Prep for Possible Olympic Outbreak

Source: https://www.livescience.com/ebola-in-japan.html

Oct 17 – Next summer, tens of thousands of sports fans will enter Japan to attend the Olympic games — but along with paraphernalia from their home countries, the tourists may be carrying lethal pathogens onto Japanese soil.

To mitigate the risk of potential outbreaks, Japan imported the Ebola <u>virus</u> and four other deadly pathogens in September in order to prepare diagnostic tests, according to news reports.

The pathogens represent the most dangerous viruses ever allowed to enter Japan, according to a report in <u>Nature</u>. All rated "biosafety-level-4" (BSL-4), the viruses must be held in a special containment facility where researchers follow strict safety protocols. The only Japanese facility that meets these requirements — the Japanese health ministry's National Institute of



Infectious Diseases — is in Musashimurayama, about 19 miles (30 kilometers) west of Tokyo.

Besides Ebola, the facility contains four other related viruses: The Marburg and Lassa viruses and viruses that cause South American hemorrhagic fever and Crimean-Congo hemorrhagic fever, according to the Nature report. The live samples will be



used to validate diagnostic tests that determine whether a person with one of the viruses is still infectious. The test assesses whether a person is generating antibodies to fight the virus, which would suggest they are in recovery, Masayuki Saijo, director of the NIID department responsible for hemorrhagic-fever viruses, told Nature.

The BSL-4 lab requires researchers to wear full-body, air-supplied, pressurized suits; change their clothing before entering; shower upon exiting; and decontaminate all materials before exiting, according to the <u>Centers for Disease Control</u> and <u>Prevention</u>. The lab itself must be housed in a separate building or an isolated wing within a larger facility must be equipped with dedicated supply exhaust air systems, vacuum lines, as well as

decontamination systems. The NIID lab stands as one of the few BSL-4 facilities in Asia, while the U.S. and Europe each have about a dozen such labs in operation or under construction, according to Nature. "This is a landmark time, a landmark event" for NIID, Saijo said in an announcement on Sept. 27, according to The Japan Times.

"We have come to a good level of understanding on the matter. It is a major stride toward protection" against the potential threats of the viruses as the country prepares to welcome spectators of the sporting event from all over the world, Takumi Nemoto, health, labor and welfare minister of Japan, told Kyodo News.



However, Japanese residents living near the facility harbor serious concerns. The NIID announced its intention to import the viruses in November at a public hearing, where local residents protested the plan, according to The Japan Times. "It is nonsense for the government to tell us to accept the plan because of the Olympics," a representative of



the Raizuka residents' association, who lives near the storage facility of NIID's Murayama Branch Laboratories, told <u>The Asahi</u> <u>Shimbun</u>. "We are worried and cannot accept it."

Although the NIID facility was built to handle BSL-4 pathogens back in 1981, resistance from locals prevented the institute from bringing viruses on-site, according to Nature. In 2015, the health ministry and the mayor of Musashimurayama finally cleared the lab to operate as a BSL-4 facility, potentially in response to the <u>Ebola</u> outbreak in West Africa, according to an <u>earlier Nature report</u>.

But until this year, no BSL-4 pathogens had been imported. Until now, Japanese researchers had to apply for access to BSL-4 labs overseas, which are in high demand, virologist Ayato Takada at Hokkaido University in Sapporo, Japan, told Nature. Experts told Nature that importing the viruses should allow researchers to prepare for possible outbreaks during the Olympics or after, and study related diseases carried by animals.

"A report of an Ebola virus infection during the Olympics could have devastating consequences if the emergency responses were not professional," microbiologist Elke Mühlberger of Boston University told Nature.

Other scientists think the global proliferation of BSL-4 labs could place humanity at greater risk of bioterror attacks.

Storing dangerous viruses, even in a highly secure lab, increases the risk of an accidental or a deliberate release, Richard Ebright, a molecular biologist and biosecurity specialist at Rutgers University in Piscataway, New Jersey, told Nature. Japan could prep for a potential Olympic outbreak without first importing the pathogens in question, he argued, and may be one of several governments "stockpil[ing] deadly agents to deter bioattacks from similarly equipped adversaries.

Bioengineered pandemic sent by terrorists could 'wipe humanity out'

Source: https://www.express.co.uk/news/science/1204985/terrorist-terrorism-biotechnology-pandemic-world-health-organisation-bioterror

Nov 17 – Terrorists could use genetically modify diseases to attack their enemies, and the consequences would be devastating. If terrorists were able to obtain the biotechnology which allowed them to genetically modify a pathogen or virus, the consequences



could be deadly for humanity. The virus would need to be altered in a way that scientists are unfamiliar with to truly maximise chaos.

Much in the same way as vaccines are created – by identifying the antigen which triggers the immune response which are then isolated and then injected it into humans – a similar process could happen by identifying the lethal traits in viruses to make them even more harmful.

Bryan Walsh, author of the book End Times which details the existential threats humanity faces, believes that if terrorists could obtain the technology to modify viruses, the consequences could be dire.

Mr Walsh told Express.co.uk: "When I look into the near future, the thing that worries me the most is the threat of a bioengineered pandemic created out the lab using some of these new tools for genetic editing.

That is particularly dangerous because diseases and pandemics are a threat already but what could be created in a lab on purpose say by terrorists would be much worse than anything created by nature.

"These technologies can advance even faster than the practitioners realise and there is no real

control system."

Earlier this year, a team of researchers run simulations on a bioterror attack using smallpox in the Asia Pacific region, and discovered there is no way authorities could act quickly enough to prevent an epidemic.

In their test, called 'Exercise Mataika', the scientists started the outbreak in Fiji.

The team explained: "A first case of haemorrhagic smallpox occurs in a private hospital in Fiji, but the diagnosis is missed, as clinicians are not familiar with the disease.

"It is not until multiple cases are reported to the Ministry of Health and Medical Services that smallpox is considered as a diagnosis." The outbreak spreads to 200 people with a fatality rate of 40 percent, in the scenario, and local health authorities become overwhelmed by the strain.

In a most realistic storyline, the media causes a frenzy, and the World Health Organisation (WHO) is forced to declare a global emergency and Interpol confirms the outbreak is a bioterrorism attack.

Airports and shipping ports are then closed down, but things get worse as many doctors and nurses die, while the remaining call a strike.



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Vaccines arrive in Fiji, but the simulation predicts that the smallpox has already spread to other, more populous, countries in Asia. The researchers, from the University of New South Wales (UNSW), added: "In a worst-case scenario, at the peak of the epidemic, worldwide, only 50 percent of smallpox cases are isolated and only 50 percent of contacts are tracked and vaccinated, causing a catastrophic blow-out in the epidemic."

"Under these conditions, modelling shows it will take more than a billion doses and 10 years to stop the epidemic.

"In the final phase of the epidemic, which becomes a pandemic, the workforce is decimated, leaving critical infrastructure, transport, power, communications and food supplies compromised.

"Trust in government and authority structures has disappeared, and legitimate attempts at communication by authorities are viewed with suspicion and fuel conspiracy theories."

Estimating the Relative Probability of Direct Transmission between Infectious Disease Patients

By Sarah Van Ness Leavitt, Robyn S Lee, et al. November 19, 2019 Source: https://www.biorxiv.org/content/10.1101/612945v2



Background: Estimating infectious disease parameters such as the serial interval (time between symptom onset in primary and secondary cases) and reproductive number (average number of secondary cases produced by a primary case) are important to understand infectious disease dynamics. Many estimation methods require linking cases by direct transmission, a difficult task for most diseases.

Methods: Using a subset of cases with detailed genetic or contact investigation data to develop a training set of probable transmission events, we build a model to estimate the relative transmission probability for all case-pairs from demographic, spatial and clinical data. Our method is based on naive Bayes, a machine learning classification algorithm which uses the observed frequencies in the training dataset to estimate the probability that a pair is linked given a set of covariates.

Results: In simulations we find that the probabilities estimated using genetic distance between cases to define training transmission events are able to distinguish between truly linked and unlinked pairs with high accuracy (area under the receiver operating curve value of 95%). Additionally, only a subset of the cases, 10-50% depending on sample size, need to have detailed genetic data for our method to perform well. We show how these probabilities can be used to estimate the average effective reproductive number and apply our method to a tuberculosis outbreak in Hamburg, Germany.

Conclusions: Our method is a novel way to infer transmission dynamics in any dataset when only a subset of cases has rich contact investigation and/or genetic data.

WHO Prequalifies Ebola Vaccine, Paving the Way for Its Use in High-Risk Countries

Source: https://www.domesticpreparedness.com/updates/who-prequalifies-ebola-vaccine-paving-the-way-for-its-use-in-high-risk-countries/



Nov 17 – The World Health Organization (WHO) today prequalified an Ebola vaccine for the first time, a critical step that will help speed up its licensing, access and roll-out in countries most at risk of Ebola outbreaks. This is the fastest vaccine pregualification process ever conducted by WHO.

<u>Prequalification</u> means that the vaccine meets WHO standards for quality, safety and efficacy. United Nations agencies and Gavi, the Vaccine Alliance, can procure the vaccine for at-risk countries based on this WHO recommendation.

"This is a historic step towards ensuring the people who most

need it are able to access this lifesaving vaccine," said Dr Tedros Adhanom Ghebreyesus, WHO



Director-General. "Five years ago, we had no vaccine and no therapeutics for Ebola. With prequalified vaccine and experimental therapeutics, Ebola is now preventable and treatable."

The **injectable Ebola vaccine, Ervebo**, is manufactured by Merck (known as MSD outside the US and Canada). It has been shown to be effective in protecting people from the Ebola Zaire virus and is recommended by the WHO Strategic Advisory Group of Experts (SAGE) for vaccines as part of a broader set of Ebola response tools.

The decision is a step towards greater availability of the vaccine in the future, though licensed doses will only be available mid-2020.

This announcement comes less than 48 hours after the European Commission decision to grant a conditional marketing authorization for the vaccine, following the recommendation from the European Medicines Agency (EMA).

Due to the urgent public health need for a prequalified Ebola vaccine, WHO accelerated prequalification by reviewing safety and efficacy data as the information became available. Representatives from the prequalification team participated in the EMA evaluation process to address programmatic suitability for at-risk countries in Africa.

"The development, study, and rapid prequalification of this vaccine show what the global community can do when we prioritize the health needs of vulnerable people," said Dr Tedros.

WHO is also facilitating licensing of the vaccine for use in countries at risk of Ebola outbreaks, based on the reviews and positive outcome by the EMA. WHO, with the support of EMA, has worked closely with many African regulators who have indicated they will quickly license the vaccine following the WHO recommendation.

Firehosing: The Systemic Strategy that Anti-Vaxxers Are Using to Spread Misinformation

Source: http://www.homelandsecuritynewswire.com/dr20191114-firehosing-the-systemic-strategy-that-antivaxxers-are-using-to-spread-misinformation

Nov 14 – Last week, Bill Maher <u>hosted Jay Gordon</u>, a controversial doctor who peddles misinformation about vaccines. Lucky Tran writes in the <u>Guardian</u> that the 14-minute interview, Gordon repeated all the misleading and dangerous views anti-vaxxers promote: highlighting discredited work on vaccines and autism, disingenuously labelling measles a benign illness, and questioning a vaccine schedule that has been proven safe and effective by decades of research.

Tran writes that as is the case with many who work in science and medicine, he is exasperated. "How does this keep happening? Why do people keep giving snake-oil salesmen a microphone?" he asks. "The answer to all my questions is simply that lying works," Tran writes.

Tran adds:

Ever heard of "firehosing"? It's a relatively <u>new term</u> coined by Rand researchers Christopher Paul and Miriam Matthews in 2016 to describe the propaganda tactics Russian authorities use.

What does this have to do with anti-science talkshows? So far, the concept of firehosing has only been applied to political propaganda. But I think there are many lessons here for those tracking areas of science denial such as vaccines and climate crisis.

Firehosing relies on pushing out as many lies as possible as frequently as possible. That's typical for propaganda, but the aspect that makes firehosing a unique strategy is that it doesn't require the propagandist to make the lies believable. That seems counterintuitive, but as Carlos Maza of Vox <u>explains</u>, firehosing is effective because its goal isn't to persuade. It's to rob facts of their power. Firehosing inundates us with so many wild opinions that it becomes exhausting to continually disprove them. In this scenario, reality is reduced to positioning and who can sell their position best.

"The strategy is effective for those trying to hold on to political power, and it's the same for those who gain power from engaging in science denial," Tran writes.



Germany makes measles vaccination compulsory

Source: https://www.dw.com/en/germany-makes-measles-vaccination-compulsory/a-51243094

Nov 14 – As of March 2020, parents will have to prove their child is vaccinated against measles before sending them to day care or school. While the Health Ministry says the bill is "child protection," critics think otherwise. Before the introduction of measles vaccine in 1963 and widespread vaccination, major epidemics occurred approximately every two



to three years. Some 2.6 million people died from the highly contagious disease every year — with children the most vulnerable. But by the turn of the millennium, some countries had declared the disease "eradicated." In recent months, however, governments around the globe <u>have been forced to take action once again to combat the steady return of measles cases</u> and a growing skepticism towards vaccination. Germany is among them. On Thursday, the German parliament — the Bundestag — passed a law to make immunization mandatory.

Requirements for caregivers

The "Measles Protection Act" stipulates that as of March 2020 children and staff in kindergartens and schools, medical facilities, and community facilities must be vaccinated. These include residences for asylum seekers, refugee shelters and holiday camps. Parents who do not vaccinate their children of school age will face hefty fines of up to €2,500 (\$2,749), while younger children could face a ban from day care facilities.

The World Health Organization (WHO) states that <u>95% vaccination coverage</u>, or <u>"herd immunization</u>," is required for a country to prevent a mass outbreak. A report by the Robert Koch Institute, however, found that only 93% of children starting school had received both the first and the decisive second measles vaccine.



Calls for right to individual decision

After months of debate, the law approved on Thursday wasn't passed without criticism. Pediatrician Dr. Steffen Rabe, a member of the association "Doctors for individual decision-making on vaccinations," said every parent should be allowed to decide whether they immunize their child.

Germany's vaccination problem

"The law is unnecessary, ineffective and unconstitutional," Rabe told DW, quoting the right of bodily integrity.

The main problem, Rabe argued, is among adults. Of the 498 cases of measles reported in the first 10 months of this year, 70 of them were among 20- to 24-year-olds, compared to 37 among 5- to 9-year-olds.

As the measles vaccination in Germany is only available as a triple — and sometimes quadruple — shot, the mandatory measles vaccination will also indirectly make immunization against measles, mumps and rubella, and in some cases chicken pox obligatory. Rabe suggested that the introduction of a single immunization might appeal to some of Germany's skeptical parents.

"Some parents don't want to vaccinate their children against all three diseases due to concerns about possible negative — and positive — side effects later in life," Rabe said.

The German Association of Cities was also critical, saying that the law will affect the legal right to a place at a kindergarten and the difficulty of finding an available spot — an ongoing issue in Germany.

German Health Minister Jens Spahn defended the new law, however, saying that the new bill is a "child protection law" and a question of "individual responsibility."

"My idea of freedom does not stop at my level as an individual," the health minister said. "Rather, when I sit here in a room like this with 500 or 600 colleagues, in a cinema or on a train, when it comes to community facilities, it is also a question of whether I am unnecessarily putting others at risk. And a measles infection is an unnecessary danger in 2019."

"Freedom also means that I will not be unnecessarily put at risk, and that is precisely why, from the point of view of preserving freedom, this law is a good law, because it protects freedom and health."



